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HINTON, KAHN AND WASSERMANN REACTIONS IN DIABETES

BY H. F. ROOT, M.D.,* AND GENEVIEVE O. STUART*

IN 1927 a new serologic test for syphilis was described by Hinton and the results of its application in both syphilities and non-syphilities were reported. Clinical trials, with comparison of this test with the Wassermann and Kahn tests, were reported by Smith, Cheever and Splaine, Danbolt and Härne, as well as a number of later authors. The conclusions reached were that the Hinton test was somewhat more sensitive than the Wassermann, especially in late stages of syphilis, and gave fewer false positive and doubtful reactions.

The object of the present study is to report a comparison of these three serum tests carried out upon more than 1,000 blood specimens of diabetic patients, in order to determine what effects upon these serologic tests might be produced by the chemical variations observed in diabetic bloods. Because of the rapidity with which the chemical changes occur in diabetic blood, partly due to the disease itself and partly due to its treatment, it appeared that the occasionally reported instances in which the Wassermann reaction has seemed to be affected by such features as acidosis, an increase in the cholesterol of the blood, hyperglycemia and variations in the hydrogen-ion concentration might be verified and explained. Accordingly, with the coöperation of Dr. Hinton and the State Wassermann Laboratory, blood specimens obtained from diabetic patients at the New England Deaconess Hospital were simultaneously tested by the Wassermann, Kahn and Hinton methods. Precautions in collecting the specimens were observed as follows: A dry, clean syringe was always used; the needles were sterilized in oil and carefully drained so that as nearly complete removal of the mineral oil was obtained as possible; the blood specimens were collected in the usual clean sterile Wassermann tubes and kept cool in a refrigerator until tests could actually be performed under the direction of Dr. Hinton in the Wassermann Laboratory of the Department of Health of Massachusetts. No selection of patients was carried out, but, during a period of a few months, on nearly all patients from one to five blood specimens were obtained. They were then classified with respect to the following conditions: (1) The height of the blood sugar; (2) presence or absence of acidosis; (3) treatment with or without insulin; (4) percentage of blood sugar; (5) gangrene; (6) albuminuria; (7) presence of syphilis. It was thought that possibly a higher incidence of syphilis would be shown by the use of these three tests than would be obtained by the Wassermann only. As a matter of fact, very slight difference was found. The technique for the three tests was the same as that published by Hinton and Kahn.

The object of this study was not to compare the three tests but rather to see whether variations in the chemistry of the blood would affect the reactions in producing false results. Our first comparison is based upon a division of cases according to the level of the blood sugar. *(Table I.)* In one group are included 248 cases in which the blood sugar, tested at the same time that the Wassermann test was performed, was below 0.12 per cent., the average being 0.09 per cent. A second group includes cases in which it was between 0.12 and 0.24 per cent.,

Wassermann Data

TABLE I

SEROLOGIC TESTS AT VARYING LEVELS OF BLOOD SUGAR

248 Cases with Blood Sugar below 0.12 per cent., average 0.09 per cent.

	Negative	Positive	Doubtful	Insufficient
Wassermann	330	11	5	2
Kahn	224	14	6	4
Hinton	234	13	1	0

615 Cases with Blood Sugar between 0.12 and 0.24 per cent., average 0.18 per cent.

	Negative	Positive	Doubtful	Insufficient
Wassermann	588	21	5	1
Kahn	578	22	12	3
Hinton	588	21	2	4

205 Cases with Blood Sugar above 0.24 per cent., average 0.30 per cent.

	Negative	Positive	Doubtful	Insufficient
Wassermann	199	4	1	1
Kahn	190	3	10	2
Hinton	198	6	1	0

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and a third group was characterized by blood sugars above 0.24 per cent. It will be noted that there is a striking agreement among the three tests in all groups. The Kahn test gave distinctly more doubtful reactions than either the Hinton or Wassermann. The number of positives is so nearly the same for all three tests that it is evident that variations in the blood sugar level do not make for any greater number of positive tests by one method than by the other. The cases in which the three tests disagreed should be separately discussed.

TABLE II

43 Cases with Gangrene

	Negative	Positive	Doubtful
Wassermann	38	3	2 (unsat.)
Kahn	38	3	2
Hinton	38	3	2

The next comparison (shown in *Table II*) was made in the cases with gangrene because it has been noted by Joslin[1] that among 109 cases of diabetes with gangrene, in 3.8 per cent. the Wassermann test was positive, as contrasted with 1.7 per cent. among 1000 cases without gangrene. The number of cases thus studied in this series was only 43, so that no conclusions could be drawn. Three positives were obtained by all three tests in two patients.

It has been suggested that variations in the hydrogen-ion concentration of the blood may affect the serologic reactions. Twenty-nine tests were done in a group of patients with acidosis with no disagreement in the results. The degrees of acidosis varied from actual coma, in

TABLE III

29 Cases with Acidosis

	Negative	Positive	Doubtful	Insufficient
Wassermann	28	0	1	0
Kahn	28	0	0	1
Hinton	28	0	0	1

which the plasma CO_2 combining power was as low as 12 volumes per cent., to two cases in which the urine contained a maximum amount of diacetic acid but the patient was no more than slightly drowsy. In a number of cases a second series of tests was done after recovery from acidosis and in no case was disagreement in the tests found with the exception of one patient who had one doubtful Wassermann. This later became negative.

The effect of albuminuria as a complication interfering with the reactions was analyzed by dividing the cases into a group with a slight to a large trace of albuminuria and a second group including patients showing none to a slight trace. (*Table IV.*) No definite effect upon the serologic tests could be demonstrated.

TABLE IV

156 Cases with Albuminuria Varying from a Slight to Large Trace

	Negative	Positive	Doubtful	Insufficient
Wassermann	153	2	1	0
Kahn	151	2	3	0
Hinton	153	2	1	0

883 Cases with Albuminuria Ranging from 0 to Very Slight Trace

Wassermann	844	28	9	2
Kahn	834	33	15	1
Hinton	845	33	3	2

In diabetic patients the blood may vary in its content of cholesterol over a wide range. Values exceeding 220 milligrams per 100 c.c. are distinctly above normal and were more commonly observed in patients either inadequately treated or having active acidosis. *Table V*

TABLE V

12 Cases with Cholesterol Above 220 mgs. per 100 cc. Plasma (Average 389)

	Negative	Positive	Doubtful	Insufficient
Wassermann	12	0	0	0
Kahn	10	0	2	0
Hinton	12	0	0	0

10 Cases with Cholesterol Below 220 mgs. per 100 cc. Plasma (Average 174)

Wassermann	10	0	0	0
Kahn	10	0	0	0
Hinton	10	0	0	0

shows twelve such cases. None were positive and only two doubtful Kahn tests were found. In ten cases with the cholesterol content below 220 mgs. per 100 c.c., no disagreement was found.

The effect of insulin treatment was studied by dividing the cases into two groups, the first consisting of 569 cases treated with insulin and the second of 509 cases treated without insulin. As will be seen by *Table VI,* the average dose

TABLE VI

569 Cases Treated with Insulin—Average Daily Dose 18 Units

	Negative	Positive	Doubtful	Insufficient
Wassermann	543	16	7	3
Kahn	532	20	14	3
Hinton	541	21	2	5

509 Cases Treated Without Insulin

	Negative	Positive	Doubtful	Insufficient
Wassermann	485	20	3	1
Kahn	475	18	14	2
Hinton	487	20	2	0

in the insulin treated cases was 18 units. The percentage of doubtful tests was slightly greater in this group—1.4 as compared with 1.3—and the percentage of positives was 3.4 as compared with 3.8 in the cases treated without insulin. The doubtful tests were more numerous in the Kahn and Wassermann tests than in the Hinton group.

The cases in which disagreement among the three tests was shown when applied to the same specimen of blood are more important. This group consisted of 38 patients upon whom 59 tests by all three methods were performed. That is, the three methods failed to agree. In addition, previous Wassermann tests had been carried out upon these patients so that a total of 75 Wassermann tests had been made on this group. In this group there were four doubtful Hinton tests. In one case the patient, a dentist, had contracted syphilis in the finger, apparently from a patient, and had received active treatment. The Hinton test in this case, although doubtful once, was later positive, in agreement with the other two tests. Two doubtful Hinton tests were unexplained and the fourth occurred in a probable luetic. Twelve Hinton tests were positive in a group of six patients. Of these six patients one was a known luetic under treatment. Four were patients without definite luetic history, but whose Kahn and Wassermann tests were sometimes positive and sometimes negative. In the sixth case the Hinton was the only positive test and no definite luetic history was obtained. The greatest number of doubtful tests were obtained by the Kahn method. The frequency of the doubtful Kahn reaction did not depend upon the height of the blood sugar because six of these patients had a blood sugar below 0.12 per cent, twelve had blood sugars between 0.13 and 0.24 per cent, and in ten cases the blood sugar exceeded 0.24 per cent. No one factor could be found to explain the doubtful tests. In one case the Kahn was positive whereas the other two tests were negative. One might ask whether disagreement in the tests was more frequent at one level of blood sugar than in the other. As a matter of fact, in this group the blood sugar was 0.12 per cent. or below in 20 cases; it was between 0.13 per cent. and 0.24 per cent. in 28 cases, and over 0.24 per cent. in 11 cases.

TABLE VII

13 Diabetic Bloods Repeatedly Positive by Three Methods

Number	Range of Blood Sugar Per Cent.	Range of Insulin Dose Units	Albumin
1	0.07-0.24	0.-27	0-SPT
2	0.16	12	ST
3	0.15	0	SPT
4	0.10	15	SPT
5	0.09-0.17	0	0-VST
6	0.12	0	VST
7	0.17	0	VST
8	0.09	0	0
9	0.14-0.37	30-38	SPT
10	0.17	25	VST
11	0.11	+	SPT
12	0.12-0.16	0	VST
13	0.09-0.16	0	SPT-ST

Positive tests were consistently obtained by all three methods, repeated from one to five times, in 13 cases listed in Table VII to show that positive reactions were obtained in spite of considerable variations in blood sugar, insulin dose and albuminuria.

SUMMARY

1. A comparison of Wassermann, Hinton and Kahn tests carried out simultaneously on 1078 diabetic blood specimens is reported. Disagreement in the three tests occurred in 59 cases.

2. Variations in the blood sugar, cholesterol of the blood, acidosis and albuminuria could not be shown definitely to produce false positive reactions in any test.

3. The largest number of doubtful tests were obtained with the method of Kahn, and the fewest with the Hinton reaction.

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UNEXPLAINED FEVER WITHOUT LEUCOCYTOSIS: FOUR CASES PROVED TO BE UNDULANT FEVER*

BY WILLIAM RIELY JORDAN, M.D.†

THE not infrequent occurrence of unexplained fever without leucocytosis and cases simulating tuberculosis warrant this report of four cases which proved to be undulant fever. The white blood count and smear are of much help in the differential diagnosis. A normal or reduced white count simplifies the problem. In this section of the country tuberculosis, influenza or grippe, typhoid, lymphoblastoma, rheumatic fever, bacterial endocarditis, and malaria are probably the diseases first considered. A brief report of four cases follows:

Case 1. A woman, 40 years of age, came to the Massachusetts General Hospital Emergency Ward

*From the Medical Services of the Massachusetts General Hospital and the New England Deaconess Hospital.

†Jordan—For record and address of author see "This Week's Issue", page 1225.

December, 1929, complaining of weakness and low back pain. Two weeks before admission she developed low back pain which later became dull and constant and persisted until entrance to the hospital. Accompanying it throughout were increasing and marked weakness, anorexia, constipation and a cough (? hemoptysis). Two nights before admission a severe night sweat and chill occurred. Her physical examination showed a languid, slightly pale woman with a spleen easily palpable on some days, but not on others. She developed apparent rose spots, but typhoid was excluded by cultures and Widal test. Her temperature rose from normal in the A. M. to 102° p.r. in the P. M., and then ranged from normal to 103.8° p.r., returning to normal in sixteen days. The white count ranged from 6,400 to 4,400 with 77 per cent. polymorphonuclear cells on one occasion and 62 per cent. polymorphonuclear cells on another. The white cells were normal in appearance. Tuberculosis of the chest was excluded by physical examination and x-ray. Agglutination for undulant fever (both Brucella abortus and Brucella melitensis) was positive in a dilution of 1:1215 on the blood serum. It has been suggested[2] that enlarged glands may account for the cough and pain; but there was no demonstrable glandular enlargement. Gradually, over a period of a few weeks, she regained strength, and her symptoms disappeared. A few months later her son wrote that she was apparently well. The source of infection was not definitely determined, but possibly was from raw milk obtained from a dairy in New Hampshire.

Case 2. A woman, 44 years of age, came to the Massachusetts General Hospital Out Patient Department in March, 1930, complaining of fatigue and malnutrition. She had always been costive, and always had a tendency to bleed. She had been jaundiced when seven years old. The present illness began in May, 1929, with increasing weakness and easily induced fatigue (? of night sweats, cough and hemoptysis at onset, or three months prior to entry), loss of twenty-five pounds (sixteen per cent.) in the past five months, gas and anorexia in the past three months, and recently menstrual symptoms. For the first ten months of the preceding year she had normal menstruation every three weeks, as opposed to every four weeks previously. Three months ago she had very profuse bleeding during her menstrual period. At this time she had several profuse nosebleeds. Two months ago the menstrual flow was scanty. One month ago the flow was very scanty, and her menstruation this month was overdue. Her physical examination was essentially negative except for slight icterus and a very large and hard liver, suggestive of malignancy. The spleen was not felt. There was no lymphadenopathy. On the ward she had a typical temperature curve from normal up to 104° p.o. with gradual ascent and descent over a period of 12 days, during which time her white count dropped from 4,700 to 2,200 and the smear showed a decrease in polymorphonuclear cells from 60 per cent. to 35 per cent. and an increase in lymphocytes from 33 per cent. to 55 per cent. with 7 per cent. abnormal whites. Twelve days after the fever the differential count had returned to normal with 61 per cent. polymorphonuclear cells and 32 per cent. lymphocytes. Tuberculosis of the chest was excluded by physical examination and x-ray; typhoid by cultures and Widal. Agglutination for undulant fever was positive in a dilution of 1:3645 and later 1:12,000 (both Brucella abortus and Brucella melitensis). She had epistaxis while on the ward with generalized purpura (bleeding time 10 minutes; after the fever, 6½ minutes). Within three weeks after subsidence of the fever (May, 1930) her symptoms had almost disappeared, and she had a normal menstrual period. The discharge diagnosis was hepatic cirrhosis and undulant fever. On November 6, 1930, she stated that since her discharge she had worked continuously without symptoms except for slight menstrual irregularity (7 week interval this time). She had taken no medicine, but had taken care to use only pasteurized milk. Her physical examination was essentially negative, although a liver of normal consistency was easily palpable two fingers below the costal margin. Both kidneys were also palpable. The white count was 7,950 with 64 per cent. polymorphonuclears and 28 per cent. lymphocytes. The smear and hemoglobin were normal. Agglutination for undulant fever (only abortus tried) was positive (complete up to 1:405, partial at 1:1215).

This case is of interest from several viewpoints. Giordano and Ableson[3] reported a case (age not given, nor possibility of its being a symptom of the menopause) with excessive and prolonged menstrual bleeding. Our patient had menstrual irregularity with one period of profuse bleeding. She also had epistaxis and purpura. This excessive bleeding has not recurred since her other symptoms have disappeared. (One other case in this series had spit blood, apparently from the nose or throat.) This hemorrhagic diathesis may have been dependent on liver damage. She also had a liver which, with her other symptoms, suggested the possibility of metastatic malignancy. Examination subsequent to the active phase of the disease discouraged such a consideration. The definite change in white count and differential during the afebrile and febrile stages of the disease is striking, and suggests a causal relationship.

Case 3. A man, 25 years of age, was sent to the New England Deaconess Hospital in October, 1930, with a tentative diagnosis of tuberculosis. His chief complaints were dull epigastric ache and generalized weakness. His history dates to nine months ago. It began with headaches, especially occipital, which usually came on at night and disappeared by morning. These continued till entry to the hospital. For the past four months he had had languor, lassitude and fever (99-100° p.o.) unaccompanied by anorexia or weight loss. He had had insomnia for the past two months. For the past four weeks he had had a constant dull epigastric pain. For the past two weeks he had had night sweats and constipation. His physical examination was essentially negative except for slight enlargement of the posterior cervical and axillary glands and a palpable spleen and liver. The white count was 6,000 with 68 per cent. lymphocytes, many of which were early forms, including a few blasts. There was a moderate number of stippled red cells without other evidence of plumbism. No malarial parasites were seen. The temperature peaks ranged from 99 to 100.4° p.o. each evening, being normal each morning. Typhoid and tuberculosis were ruled out by cultures, agglutination and x-ray. Agglutination for undulant fever was positive in a dilution of 1:1215. (Brucella melitensis was not tried.) Within two weeks all the symptoms were gone except slight weakness which had lessened, and the temperature had dropped to normal. The source of infection was unknown, but he had used raw milk. In January, 1931, he appeared to be healthy.

Case 4. A woman, 63 years of age, came to the New England Deaconess Hospital in October, 1930, complaining of weakness, anorexia, loss of weight,

drenching night sweats, and low grade fever, following severe glossitis and gingivitis three weeks before entry. Her physical examination was essentially negative except for slight enlargement of the liver. The spleen was not palpable. The temperature peaks ranged from 99.4° to 102° p.o., being normal each morning, pulse 80 to 120, respirations essentially normal. The white count was 7,350 with 56 per cent. polymorphonuclear cells and 43 per cent. lymphocytes. Typhoid was excluded by blood cultures and Widal. The only evidence for tuberculosis was the presence of slightly diminished radiance of the right apex and a visible interlobar pleura on the right by x-ray. There were no râles in the lungs, cough, or sputum. Agglutination for undulant fever was positive in a dilution of 1:405 on blood serum. The symptoms disappeared within a week at the hospital, but the fever of 99.4° continued even at discharge.

Undulant fever is an infectious disease, usually characterized by low-grade fever of subacute or chronic nature, with relatively mild general symptoms, and having remissions and relapses. Its cause is Brucella melitensis or Brucella abortus, which produces contagious abortion in animals. The disease is probably transmitted, in this section at least, almost entirely by ingestion of contaminated milk which has not been pasteurized. Occasional contact cases[4] may occur from handling infected material, such as a placenta from a cow suffering from contagious abortion. The diagnosis depends greatly on laboratory tests, although a long typical history may well make one suspect the presence of the disease. Therefore, it is essential to carry out the necessary procedure in all cases of unexplained fever or symptoms of tuberculosis, as such cases could be in the afebrile stage. The agglutination test on the blood serum is usually adequate for diagnosis. In a few cases there is no agglutination, yet a positive blood or urine culture, or a positive skin test. A few patients show agglutination yet do not have the disease, such as those with tuberculosis[3, 5], and tularemia[6]. These cases, however, are difficult enough to warrant consultation with a man experienced in the manifestations of undulant fever. Tularemia is a very rare disease in this section, and can probably be discarded as a source of confusion. Agglutination by the serum of tuberculous patients is usually only obtained in very small dilutions (occasionally up to 1:100.[5]) and is rare unless the patients have been drinking raw milk from cows infected with Brucella abortus. This agglutination is not produced by tubercle bacilli. King obtained no agglutination in a series of 690 tuberculosis patients who had used pasteurized milk[1]. In the diagnosis of these cases a sensitivity skin test for undulant fever is sometimes useful. Tuberculosis, influenza and typhoid must be considered and excluded, as should rheumatic fever, lymphoblastoma and malaria and other less common diseases.

The prognosis and the handling of these cases differ from the procedure in tuberculosis in the following respects: The prognosis is undoubtedly more encouraging, as death seldom results (mortality two per cent.), although relapses are frequent and may last two to six weeks[4]. The total duration of the disease varies from two weeks to two years, with an average of six months. The disease in New England can probably be prevented by pasteurization of all milk or by eliminating contagious abortion from all animals. The former is obviously more practical at present. Because of its manner of spreading and the frequence of its occurrence, this disease should always be reported to the Public Health Department with all appropriate data. Precautions against its spreading by contact are probably unnecessary, and strict typhoid precautions are not necessary. The treatment differs from that of tuberculosis in that sanatorial treatment is not essential; nor is such intensive or prolonged treatment, as is usually accorded to tuberculosis cases, necessary. Rest (probably in bed during the febrile stage), fresh air, and a diet adequate in amount and kinds of food are essential. Iron and transfusions may become necessary in cases of anemia. Abortus vaccines have been given at times with apparent benefit; and there is now an immune therapeutic serum available on the market. Needless to say, avoidance of raw milk is essential.

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CONTROL OF HICCOUGH WITH CARBON DIOXIDE BY A SIMPLE REBREATHING METHOD*

BY LEWIS A. GOLDEN, M.D.†

IN 1924, Yandell Henderson[1], while discussing "Resuscitation", mentioned the fact that "Sword had found that carbon dioxide controlled cases of postoperative hiccough previously uncontrollable, and the patient's life was saved by inhalation of carbon dioxide." He added, "We know that carbon dioxide in the strength of 5 to 5.6% with either oxygen or air is the best stimulus recognized for increasing the activity of the respiratory center."

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In 1927, Sheldon[2] reported a number of cases of hiccough treated at the Massachusetts General Hospital by carbon dioxide inhalation with apparently excellent results. He drew several conclusions, one being that "carbon dioxide in proper strength will control hiccough during administration and for a varying period thereafter; in some cases there will be no recurrence".

Hiccough, which is an abnormal, sudden inspiration with closure of the glottis, is often a very annoying symptom which demands treatment. It may, at times, actually endanger the life of the patient by continually sapping the remaining strength of an already weakened person, preventing his sleep and hastening the end. Outside of the hospital, the practitioner is often called upon to treat patients who, although their lives are not actually endangered, are made miserable because of persistent hiccough which prevents loss of restful sleep, interferes with eating, and causes a general soreness throughout the chest and abdomen from the continued abnormal contractions of the respiratory muscles. He usually resorts to any one, or a combination, of scores of drugs and manoeuvres advocated for the treatment of hiccough, often without success. Since it has been shown that carbon dioxide, which acts directly upon the respiratory center, is a most reliable method of stopping this distressing symptom, it should be employed more extensively. Because of the false assumption, however, that its use demands an expensive outlay of cumbersome apparatus, I wish to describe a simple, inexpensive, and readily available method which has been quite effective in my experience with the condition.

An ordinary paper bag of medium size and strength, such as is used by shopkeepers and which is always easy to obtain, is placed over the patient's face, and held so that it tightly encloses the mouth and nose. The patient is instructed to breathe into the bag. As the available oxygen in the bag is replaced, the exhaled carbon dioxide accumulates so that in several minutes the saturation of carbon dioxide is enough to produce a therapeutic effect. Six cases were treated by this simple method. In one patient, the hiccough had been continuous for 2 days and prevented the patient from sleeping, eating, and had produced a soreness in the abdomen and chest muscles. Rebreathing by this simple method checked the hiccough in 4 minutes and the patient was relieved of his symptoms without relapse to date. The other four cases were of shorter duration. All but one were relieved in 3 to 6 minutes. One had recurrences in several hours, which he relieved at home easily by the same method.

This simple method of utilizing the carbon dioxide in the expired air of the patient suffering with hiccough invites further use and study.

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HEALTH SERVICE FOR THE SMALL COMMUNITY—ITS DEVELOPMENT IN MASSACHUSETTS*

BY CLARENCE L. SCAMMAN, M.D.,† AND WILSON W. KNOWLTON, M.D.†

OF the 355 cities and towns in Massachusetts, 314 have populations of less than 20,000. In these communities the cost of effective local public health service, where such service is available at all, tends to be unreasonably high. This is due to the economic impossibility of supporting in a small community that basic group of trained, full-time workers necessary to adequate public health service.

A plan for efficient yet economical health service for these communities is now being developed. This plan involves the grouping of individual communities into districts, each district having a total population of not less than 20,000. In a given instance, a district may include twice this number of people. Each district is to be served by an adequately trained, full-time health officer who will be employed by and directly responsible to the Boards of Health of the communities making up the district. Associated with this health officer, there will be a sufficient number of nurses, inspectors, technicians, and clerks to carry on a program of activities including

1) Controlling communicable diseases;
2) Guarding child health;
3) Promoting sanitation and protecting food supplies;
4) Assembling vital statistics;
5) Conducting health education.

This idea of towns grouping themselves together into districts has several precedents in Massachusetts, the oldest of which dates back to 1888 when the first school district was formed for the purpose of bringing the benefits of full-time school supervision to small communities. Here and there about the State, towns have joined hands in some one phase of health work, such as, public water supply, milk control, laboratory service, or the sharing of the services of administrative personnel. Through these ex-

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periences certain communities have come to realize that intertown coöperation means both economy and efficiency in administration.

When the average person begins to think of a District Health Unit, in terms of one to include his own town, two questions arise in his mind:

1) "What is the District Health Unit going to cost?"
2) "What will be the advantages of such a Unit over the present method of local health administration?"

THE COST OF A DISTRICT HEALTH UNIT

At the present time those communities in Massachusetts of less than 20,000 people are spending annually, through their Boards of Health, sums of money which range on a per capita basis from zero to about $2.35, the average being approximately seventy-five cents. School health service averages twenty-five cents per capita per year more, making an annual total public health expenditure of one dollar per person. This amount is exclusive of money spent by private organizations, such as the Visiting Nurse Associations.

The local Board of Health in a small community is financially unable to hire as its executive officer one who has the requisite training for the position. The person upon whom the Board of Health's activities do fall is able at best to handle them as an avocation rather than as a vocation. As a result, both the quality and the quantity of health service which the average Massachusetts town gets by itself is distinctly less than that which many a county elsewhere in the United States receives from its full-time Health Unit. If the citizens in the smaller towns of Massachusetts will learn the lesson of intertown coöperation which has already been demonstrated, as mentioned above, they should be able to procure adequate public health service as economically as can people in other parts of the country. Without intertown coöperation, however, health work in Massachusetts is sure to be costly and ineffective.

Of the towns in a District Health Unit, some will find that a coöperative form of health work costs them more money than they were spending previously, — an indication that former programs and activities were inadequate. For other communities, a District Health Unit may mean an actual saving of money,—an indication that formerly these communities were not receiving full value for money spent. For all towns the new plan of health work will mean more efficient service, which brings up the second question, "What will be the advantages of a District Health Unit over the present method of local health administration?"

THE BASIC ACTIVITIES OF A DISTRICT HEALTH UNIT

Controlling Communicable Diseases

In the public eye, controlling acute communicable diseases is the first duty of a health department. No department can do this work satisfactorily, however, unless it promptly receives from the attending physician or from the head of the family concerned a report of every case of such diseases. When such a report is received, action should be both prompt and efficient, covering the following points:

1) Isolation of the patient and nursing instruction to the family in non-hospitalized cases;
2) Supervision (quarantine) of all possible contacts;
3) Epidemiological study of the case with reference both to the source of the infection and to the subsequent spread of the disease.

At all times, the health officer should be ready and able to furnish consultative diagnostic service to the local physicians and to make available for their use both therapeutic and prophylactic antitoxins and vaccines. To argue whether protection against smallpox by vaccination and protection against diphtheria by immunization should be done by the family physician or by the local health department is of no help to the children who need such protection. Someone must carry on such work and carry it on effectively. The health department should aim primarily at education along these as well as other lines, while the family physician should be prepared to follow up such health education by serving his patients in the light of the newer knowledge of preventive medicine. Until such time as the local physicians are ready to do this, however, the service should be offered by the health department.

The key to the adequate control of tuberculosis is early diagnosis. On this fact alone rest the most promising hopes of recovery. In this connection, the health department can render real help to the local physicians in terms of diagnostic service and nursing supervision of cases in the home. Particular attention should be paid to the contacts of each case, keeping always in mind the value of early diagnosis. Such work, of course, requires an adequate nursing service supported by a health consciousness on the part of the general public.

Every local health department should have a well-defined venereal disease program, which should be made up of three lines of activity:

1) Intelligent follow-up of those patients who stop treatment with their local physicians before they have ceased to be a menace to the health of others;
2) Prompt investigation of such sources of infection as come to the attention of the local health department;

3) Education of the general public as to all phases of the venereal disease problem with particular emphasis on the possibilities of innocent infection and on the catastrophes which may follow improper or insufficient treatment of either gonorrhea or syphilis.

Guarding Child Health

The problem of child health naturally falls into a number of separate divisions based on the child's age and environment. These divisions include prenatal and maternity care, infant and well-baby supervision, and preschool and school hygiene. In all this work the health department, as represented by its nursing staff, should aim primarily at the root of the whole problem, that is, education of the parents—particularly the mother—to understand and appreciate the value to the mother and to her children of prophylactic medical care. The health department's chief interest should be to stimulate a closer contact between the patient and the family physician, who stands at the strategic point for rendering most effective service in preventive medicine. Very often such educational work can well be carried on by means of health conferences.

In connection with the school health work, it should be remembered that in Massachusetts there is a division of health authority, the health of the school child being the concern of the School Committee rather than that of the Board of Health. Disregarding any question as to the administrative soundness of this policy, it is obvious that the present arrangement requires the closest coöperation between these two responsible groups if the most efficient health work is to be done for the school child. In school health work, it should be remembered that periodic examinations and prophylactic inoculations are at best of but transient value unless they are accompanied by an educational program that reaches back through the child to his parents.

The school environment should not be overlooked. One often sees a school teacher trying to inculcate in her pupils habits of clean living while the School Committee fails utterly to provide for the pupils such everyday essentials as proper hand-washing facilities, safe drinking water, and sanitary toilets.

Promoting Sanitation

The health department should insure for its public a clean and safe milk supply. In this connection, laboratory facilities should be available so that the health department may carry on an effective milk inspection service for quality improvement which will not only safeguard the public but help the milk producers financially by widening their markets.

The securing of an adequate and sanitary water supply constitutes another real problem for the health department, particularly in rural areas where the local department should be able to give sound advice not only as to the watershed surrounding the source of a particular supply but also as to that water's chemical and bacteriological content.

The problem of sewage disposal is closely related to the safeguarding of water supplies. In those communities not having public sewage systems, the problem of safe excreta disposal is difficult and often requires technical advice. Insanitary privies, endangering the public health, create perplexing problems for the local sanitary inspector.

The inspection of food, including meat, is a public health problem that is scarcely less vital than the safeguarding of milk and water. It is, of course, essential to have public food handling establishments maintained in a clean and sanitary manner. It is also well to remember that those who handle food may be carriers of such diseases as typhoid fever and may thus be responsible for serious epidemics. The importance of routinely searching for such carriers should not be overlooked.

The modern conception of a sanitary inspector is that of a teacher rather than that of a law enforcement officer. In this capacity, the sanitary inspector is called upon to decide between those duties which are truly important and those which are relatively unimportant. The safeguarding of milk and water and the control of food handlers are of first importance, while the abating of nuisances, which range all the way from unsightly trash piles to obnoxious odors and dead animals, is in general of but little danger to the public health although of genuine aesthetic importance. Such nuisances are, by custom, referred to the health department and should, of course, be efficiently and promptly handled but should not be allowed to assume an importance which they do not deserve.

Assembling Vital Statistics

It is sometimes hard for the general public to grasp the significance of statistical records such as those relating to births and deaths. This information, however, is of profound importance to both the community and to the individual, as shown by the following considerations:

1) Records and statistics as to births
   a. Furnish information for the infant welfare work of the health department;
   b. Give the individual legal proof of his birth, which is required in connection with many matters, such as, securing work certificates for minors, registering to vote, inheriting property, and obtaining passport privileges.

2) Records and statistics of deaths
   a. Furnish the local health officer with valuable information indicating where, when, and how his department should act in order to reduce a high general death rate or to reduce high specific death rates resulting from diseases of particular age groups or from occupational hazards;
   b. Serve as an index of the effectiveness of the health department's activities.

The accuracy of these statistics should be maintained by routine check-ups aimed to discover unreported births. Children, particularly babies, when first enrolled on the local health department's records, should have the existence of their birth certificates verified. Infant death reports should be checked against the individuals' birth certificates.

In Massachusetts the reporting of births and deaths does not go through the office of the local Board of Health but rather through that of the Town (or City) Clerk. The information so gathered should be forwarded daily to the local health officer, who, if he be alert and properly trained, will see in these statistics a "health barometer" for his community.

Carrying on Public Health Education

It has been said that the public is at least a quarter of a century behind in the practical application of those health measures, the efficacy of which modern science has already demonstrated. Is it not true that the average person becomes actively interested in the protection of his health only when he loses it, whether the loss be temporary or permanent? One of the fundamental duties of every local health department is to awaken in the minds of its public a positive health consciousness. This may be accomplished through a carefully planned and effectively executed educational program, including newspaper articles, bulletins, circulars, talks, and demonstrations. Moreover, in every contact between members of the health department and the general public, the members of the department should be keenly alive to their responsibilities in tactfully disseminating public health knowledge. Once the public has grasped the significance of preventive medicine, many of the problems connected with the crippling and killing diseases of later adult life will be solved.

SUMMARY

Every local Board of Health in Massachusetts owes to its supporting public efficient execution of certain basic public health activities, which include:

1) The control of communicable diseases;
2) The guarding of child health;
3) The appreciation of relative values in the handling of all problems in general sanitation;
4) The assembling and interpretation of vital statistics;
5) The tactful utilization of every possible means for teaching the rules of healthful living.

To accomplish even these basic objectives a local board of health must have as its executive officer a man well trained in the science and experienced in the art of public health administration. Associated with such a health officer there must be properly trained nurses, inspectors, technicians and clerks in such numbers as the people to be served and the area to be covered require. The cost of such a "Health Unit" when serving a population of from 20,000 to 40,000 people is scarcely more on a per capita basis than that which many a small Massachusetts town is now paying for "health service" that does not adequately cover any one of the above listed basic activities. To the smaller communities in Massachusetts, the grouping of towns into Health Districts offers a sound and logical means of combining necessary administrative and executive efficiency with desirable financial economy.

SOME ARGUMENTS AGAINST STATE MEDICINE*

BY WILLIAM DAMESHEK, M.D.†

IN arranging for this meeting, which is indeed a highly novel one since it deals with an economic problem rather than with one which is strictly scientific, the Good and Welfare Committee of this Society needs not apologize for the subject. State Medicine was introduced in Germany in 1883 and has been growing by leaps and bounds so that it is now active in a large portion of the civilized world. It is compulsory to greater or less extent in England, Germany, France, Russia, Switzerland, Austria, Bulgaria, Chile, Hungary, Italy, Latvia, Luxembourg, Poland, Roumania, Jugoslavia, Esthonia, Greece, The Irish Free State, Japan, Lithuania, Norway, and Portugal and is voluntary in several other countries such as Argentina, Belgium, Denmark, Palestine, Sweden, Australia, New Zealand and Spain[1]. In addition, it is being actively considered in certain provinces of Canada[2], in certain countries of South America, and even in this Commonwealth of Massachusetts[3]. It behooves us, therefore, as a group of individuals with medical interests to know of this great movement which is sweeping upon us "like an avalanche". Shoemakers, I know, are supposed to stick to their lasts, and not worry about what

*Delivered at a meeting of the Greater Boston Medical Society, January 20, 1931, following a paper "For State Medicine" by Gilbert W. Haigh, M.D., and an address on "State Medicine" by George H. Bigelow, Commissioner of Health of Massachusetts.

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is going on in the world about them. We of the Good and Welfare Committee of this Society feel, however, that physicians have too long stuck to their medical lasts, and have dumbly sat by whilst our noble profession has been tinkered with by alert social workers, insurance companies, politicians, businessmen with mass-production ideas, editorial writers, all types of magazine scribblers, and assorted types of millionaires with money in huge quantity to give away. Many of these people are dissatisfied with our poor benighted medical profession and have not hesitated to say so. One of their proposed remedies is State Medicine, the subject under discussion tonight.

State Medicine is medical practice carried out by the State through the intermediary of civil servants called physicians. The emphasis in State Medicine must be laid upon the word State, because it is the State which directs, not the medical profession. Even though it may be, as Dr. Haigh states[5], an organization based upon the economic principle of a division of labor, one cannot deny that the division of labor is made by the State, and that the laborers are the aforesaid civil servants, the physicians.

It has been said that State Medicine is socialistic. Most physicians dismiss the subject with the word "Bolshevik" and are thereby content. Strictly speaking, however, State Medicine is not socialistic, but rather paternalistic or bureaucratic. Marx and his followers contemplated a complete economic revolution—a complete change in the entire groundwork of society as it is at present constituted, except of course in Russia. Marxian socialism rapidly grew in Germany so that by 1881 it began to be a power to be reckoned with and a political organization which controlled a great many votes.

One of Bismarck's methods of attack against this growing force was a pseudo- or state Socialism which he announced in an imperial message to the Reichstag in November 1881[6]. Amongst repressive measures intended to restrain the excesses of social democracy, were such new ideas as the insurance of the working man against accidents, sickness, old age, and inability to work. This was the beginning of paternalism or the assumption by the State that it was responsible for all its subjects. Since Bismarck's time, paternalism has rapidly grown. Even in this country, despite its vaunted individualism, we see more and more of bureaucracy, not only in the realms of medicine and public health, but in finance, farming, education, etc.

Paternalism, then, as applied to the practice of medicine is not socialism and a general social democracy as Marx and his followers saw it, but socialism applied to a single specific group. This leads me to my first argument against State Medicine. Personally, I feel that a social democracy has a great deal in its favor. No one who is living through the present depression, euphemistically-called, can ignore, it seems to me, the exceedingly unfair division of wealth. Socialism—leveling out of wealth—seems fair. *But* to socialize a single profession while the rest of the country remains individualistic; to reduce to a common standard a large group while the rest of the country remains diverse; to make a single educated profession work practically at cost while the rest of the country accumulates wealth seems illogical. Either socialize everything and everybody, as has been done in Russia, or socialize nothing and nobody. Partial socialism is decidedly unfair. To expect intelligent well-trained individuals to invest at least ten years and thousands of dollars in higher education, and then to place them in the common crucible of low-paid civil service while their brothers are becoming wealthy in business, is to expect, if not the impossible, at least not the sportsmanlike thing. In Russia everyone, with rare exceptions, is in the same boat. The doctors don't have more than the business men and the business men may earn as much as the mechanics.

Paternalism in general has a good deal against it. When the government goes into any sort of business it not only manages, but must command. The rights of the individual become secondary to the rights of the state. The business or profession, whatever it is, becomes immediately the football of the politicians. Imagine our Massachusetts Legislature, composed undoubtedly of the most estimable of individuals, dealing out laws for us of the medical profession to obey. Imagine the remarkable appointments or plums which might be handed out to the more politically-minded among our physicians. Those physicians who would not care to cater to the ward-heeler would most certainly be left in the rut, whilst the more diplomatic members of the profession would find for themselves easier, less burdensome positions. In spite of Dr. Haigh's statements[5] that in a profession in which only the learned should belong, the opportunity to work intelligently would in itself suffice as a stimulus to effort, one can easily see that this is not enough. The "learned profession" once it becomes leveled under the demoralizing weight of civil service, loses almost all trace of individual initiative, at least as applied to scientific progress. It is true, as Dr. Haigh says, that some of our greatest medical discoveries have been made by physicians working in hospital units, but here we have men working not with the idea of a lifetime of civil service but with the thought of advancing by merit, not by seniority. Imagine further the red tape with which all governmental business is carried on. The medical man would be reduced to using an indelible pencil and making carbon copies in order that all the undoubtedly numerous requisitions and certificates be filled out according to regulation. There would be no graft, of course, in this governmental practice of medicine. The waste of government business; its slow-moving ponderousness; its distrust of new ideas—are all so

common as to be well-nigh proverbial. Paternalism, state socialism, is well-fitted for projects which are poorly run or not run at all by their present groups. It is said that medicine is poorly run and should therefore be paternalized. This is common propaganda, hopelessly untrue. But if the state is looking for poorly-run projects, let it cast its massive eye on matrimony, for instance. As an example of a poorly-run profession, if one may call it that, the condition of matrimony is unexcelled. Surely the state in all its wisdom, could arrange for correct matings, decide upon the time relationship of children, arrange for birth-control and what not. Isn't religion in a mess? Look at the multitude of sects,—how inefficient they must be! Can't the state control religion? What about a bureau of food administration? From a scientific standpoint we know that the correct number of calories, the right number (or rather letter) of vitamins are all important to the well-being of the people, and consequently of the state. The state could work out standard diets for standard age groups. Enough of this hit or miss practice of cooking—enough of these so-called foreign delicacies. The calories and the vitamins are the thing. Paternalize them! State Medicine is well-fitted for impersonal projects such as public health measures for the control of water and sewage. To attempt to apply it, however, to a profession which is ever progressing, which has in the past fifty years made almost unbelievable strides, is, to say the least, unwise. Again, to conclude from the success of the state in the handling of such impersonalities as water supply, that it can therefore step in and deal adequately with the intricacies and individualities of the relation between the physician and his patient is, it seems to me, to conclude wrongly.

Dr. Haigh lays a great deal of emphasis in his various writings on the medical service of the United States Navy[5]. Thus, in his bill recently filed with the clerk of the House[3], he would pattern the proposed new State Medical Department upon the Bureau of Medicine and Surgery of the United States Navy. In all of his articles he speaks of the high standards of the United States Navy doctors. He feels that the State can run its medical practice in much the same fashion as the Navy runs its own. This seems to me to have two distinct fallacies: First, the navy, not only in its medical department but in its complete personnel, is constantly under martial law. There is constant discipline. The medical department commands its patients. There are no questionings of policy. In turn, the medical department is constantly under the command and discipline of higher officers. Secondly, as regards the general excellence of the Medical Department of the United States Navy, I have heard it said that the medical men of the Navy have a great deal of leisure time, take care of their patients in a routine fashion, and are as a rule content to do the day's work and no more. This sort of thing is common not only in the United States Navy, but is the tendency in all state, municipal, and other publicly owned hospitals and sanatoria.

The above arguments, although they may be cogent, may be criticized as being more or less theoretical. State Medicine is in force in several countries. How is it working out in these? State Medicine in England was begun in 1911 chiefly through the efforts of Lloyd George[7]. It was at first rejected by the British Medical Association, but when the wily Welshman increased the capitation grant, a number of physicians broke away from the association, and took up the offer[7]. The panel physician works through insurance committees composed chiefly of the insured population. The patients, recruited from the classes of laborers and manual workers, pay to the government 9d. weekly—(9d. being paid by their employers). For this sum the worker is entitled to free medical service, drugs, appliances, money for compensation against illness, etc. The government pays one-seventh of the total cost plus expenses of administration. The patient obtains a list of panel physicians he may go to and proceeds to choose one among these. The physician is paid according to the number of patients on his panel[8]. In 1929 fifteen million patients (37.8% of total population) were being taken care of by fourteen thousand six hundred physicians at a capitation fee of 9s. (about $2.25 yearly). The average fee per visit is about 2s. (50c)[8].

Naturally, with the patient being allowed to choose his panel physician, competition results. The individual doctor tries to get into the good graces of his panel members by one of several methods: (1) certifying him sick whenever he asks for this privilege (2) giving him plenty of medicine,—which the Englishman dearly loves, and (3) giving him good service. The latter, it is needless to say, is the least effective in building up a good panel practice. What has happened? From 1921 to 1927 sickness benefit-claims have risen from 41% to 159%, the most marked increase in claims being seen in short illnesses[9]. In 1929, four hundred and ten thousand nine hundred and three cases were referred to the regional medical officers for the question of malingering. The prospect of examination caused one hundred and nine thousand six hundred and sixty-one of these persons to declare themselves "off the funds" and eighty-nine thousand seven hundred and fifty failed to attend "for other reasons". The number actually examined was one hundred and forty-three thousand eight hundred and ninety-eight. Of these, seventy-six thousand one hundred and sixty-two were found incapable of work. Thus of the original four hundred and ten thousand nine hundred and three cases—five-sixths were palpably frauds[10]. This wholesale malingering is resulting in the moral degradation of the individual physicians. The *Birmingham Medical Review* wrote recently[11]: "The habit of making unnecessary claims is well known to every

panel doctor. In a way he is responsible, for he writes the certificates on which the claim is based. But, poor devil, he is in an impossible position. Authority has created the position. Aided by Authority, the suppliant for benefit holds the whip hand every time. He can demand the certificate with the threat 'Give me what I want or I'll change my doctor.' The highbrow people with fixed official salaries shake their heads when told that panel doctors cannot afford to resist doubtful claims. But the panel doctor knows from much painful experience that the happiness of himself and his family must depend on whether he is or is not popular with the insured population. And popularity depends only very slightly on professional capacity; almost entirely on willingness to accede to demands. The man who will deal out prescriptions and sickness certificates without questioning is popular. He gets the big panel. His more particular brother finds his panel dwindling."

As I stated before the Englishman likes his medicines, and he likes them expensive. They don't cost him anything, so he wants as many as he can get. The more popular doctor is the one who prescribes large numbers of medicines. The insured has the right to complain against his doctor if he does not prescribe the drug he thinks he needs. In a recent editorial, the *British Medical Journal* says[12] that it certainly is a "topsy-turvy kind of medical practice in which the patient named the drug and the doctor obediently prescribed it, or greatly daring, declined to do so". There is agitation in Parliament about this excessive prescribing by panel physicians and talk of a fine of one hundred pounds for prescribing drugs and dressings beyond the average[13]. Parliament has become quite a medical society nowadays, since it has taken to running a fifteen million patient practice, and it has lately been known to debate on what are drugs and what are alleged drugs[12]. Thus the Committee on the Definition of Drugs has recently classified one hundred and sixty-five substances into: those never drugs, those always drugs, and those occasionally drugs[12]. Practitioners have been disciplined for prescribing cod liver oil and malt[12]. Panel practice is thus being conducted under the continual harassment of outside control. The physician must satisfy, not only his patient, but his administrative superior. Panel practice has encouraged unnecessary recourse to the physician, and his services have thereby become less valued. "The people are being converted into loafers and hypochondriacs" says a physician member of Parliament[5]. A terrific amount of clerical work for the physicians has developed. As a matter of fact, according to the Commission on Medical Education[1], most of his time is spent in filling out certificates, making records and addressing communications to the various Committees and government agencies. There are all kinds of regulations which are continually becoming more numerous. There are regulations governing choice of doctor, change of doctor, hours for the doctor to be seen, ways in which the patient may secure medicines, rules governing the relationship of patients and physicians, complaints against doctors, manner of removing the doctor from the list, etc.

In spite of all this, the average panel physician is well satisfied with his lot. He may see (as actually was noted by an investigator of the Commission of Medical Education[1]) as many as eighty-four persons in three hours, he may spend three-fourths of those three hours in filling out blanks; he may be, and is gradually losing the individuality and freedom which once distinguished the medical profession, but he is content. He gets his salary, he eats his meals, he deals out his prescriptions, he has his little small talk and he is content. Shades of Addison, Hunter, Bright, and Osler,—what has the British Medical profession descended to?

Germany, the fatherland of paternalism, was the first country to establish social insurance against illness. Compulsory sickness insurance is required of all laborers, salaried personnel and domestics who make three thousand six hundred marks (about $900.) or under annually. Thirty-two per cent. of the population is insured. Eighty per cent. of the German physicians get their entire income from "Krankenkassen"; the average income of the insurance physicians being six thousand marks a year, although forty per cent. do not make more than one thousand marks a year. Since only fifteen per cent. of the physicians have salaried appointments in hospitals, universities and government service, there is a long waiting list of about four thousand recent medical graduates anxious to get on the insurance lists. It takes about five years to get an insurance practice. Private practice is handled by about five per cent. of the physicians[1].

Doctors are paid according to the number of visits made by the insured, one mark for an office visit, two to three marks for a house call. This immediately multiplies, of course, the number of visits. The insurance companies are interested only in providing medical benefits at the lowest possible figure. This has resulted, even from the rapidly deteriorating profession, in constant grumbling. In 1923 there was a strike of all the physicians, quickly quelled by the insurance companies which set up a large number of clinics manned by strike breakers[1, 13a, 14]. Even now there are thirty insurance clinics in Berlin. The medical service there is appalling. A large part of insurance practice is made up of certification and renewal of prescriptions[1]. Malingering is rife. In 1926 of eight million patients, one and three-tenths million had to be asked to present themselves for control examination because they said they were unable to work. One hundred and ninety-eight

thousand one hundred and forty-two did not even present themselves; two hundred and nineteen thousand nine hundred and twelve discovered they were cured on the day of examination, and two hundred and ninety-two thousand one hundred and thirty-three were found to be in good physical condition. Thus seven hundred and ten thousand or fifty-six and five-tenths per cent. were found to be pseudo-sick and sent back to work[14]. Economic crises fill the doctors' waiting rooms. In a certain factory, fifty women were discharged; the following day, forty-nine of them had medical certificates of illness. "Christmas fever" is common—two weeks off for the holidays—easily arranged by the pill-throwing, certificate-writing doctor[14]. In 1913, there were forty-two and one-tenth cases of illness annually among one hundred insured; in 1925 this had risen to fifty-one and five-tenths per hundred. In 1913 each insured had an average of eight and seven tenths days of illness annually; in 1925 this had risen to twelve and five-tenths days[1]. Heaven knows what it is now with all this unemployment. Probably seven-eighths of the insured population is getting sickness dole. During the prosperity boom of 1923, there was a surprising drop in cases of illness, and time off spent for illness[1]. On reflection this is not too surprising.

What has happened to the physicians under this scheme? They have developed writer's cramp writing prescriptions and medical certificates. The consulting room has deteriorated from a temple of health to an exchange in which business is transacted[14]. The doctor simply is a judge as to whether the patient can work. If there is any question, university assistants act as referees. This takes these bright men away from their research, which has long distinguished German medicine[1]. The insurance companies are after the universities to change their medical education so as to include courses on fitness for work, insurance complaints such as backache, "rheumatism", etc.[1]. Some of the more hardy of the companies are trying to bring not only the doctors but the medical schools under their control.

It can thus be seen that German medicine is fast becoming a trade on a lower scale than a barber's. And yet the claim is made that the insurance plan fosters and encourages preventive medicine. It brings patients early and often. So it does. *But* the poor insurance doctor, with so little pay and with limited time usually does not even examine the patient. Stoeckel[15] found in investigating fifty-five obstetrical deaths that thirty-nine of these were due to criminal negligence. Küttner[15] in discussing eight hundred cases of inoperable carcinoma of the rectum found that seventy per cent. of them had been under the care of the insurance doctor who in only a very rare instance did rectal examination but usually prescribed something for hemorrhoids. What good is early examination, then, if it is done perfunctorily by state employees?

This is indeed a black, depressing picture. A once fine profession, respected and looked up to throughout the world, is rapidly deteriorating to a dishonest trade. Any of you who saw Emil Jannings in the "Blue Angel" and witnessed the profound breakdown of a proud professor into a groveling clown can appreciate the application of this conception to the German medical profession.

These two systems, to be sure, are not the pure state medicine which Dr. Haigh advocates. He would have the state run the entire show: choose the doctors—place them in districts—give them their supplies—standardize their Boston bags—tell them how to go about their examination—tell them what to prescribe. The state could probably, as time went on, make rules as to diagnosis, prognosis, and treatment so that this idea of individualizing the patient could be overcome. After all, the state can run a sewage system; it can run a human body. It can run the medical profession. The doctors would be glad to invest ten years and more of college and medical school and hospital training and then settle down to a salary lower than the Navy physicians' salary (maximum salary $4100, according to House Bill No. 288—salary for the first ten years under $2000 annually). After all as a writer (a social worker[16]) in the *Nation* said "What is there so peculiar in the education, training, make-up and work of the physician which makes it impossible for him to work for a salary as most of us in other professions do?" There is no objection, it seems to me, to getting a salary, but when that salary makes a "learned man" a common civil servant, when that salary will produce a standard of work which is perfunctory and will transform an individual patient into a number to be routinely gone through — then that salary should never be given.

Thus, State Medicine in its various forms has certain disadvantages. In general, it is a form of paternalism or bureaucracy and as such deserves to be fought without further ado. It is partial socialism in a non-socialistic state. In particular, it is disadvantageous to the groups most concerned. First, it is bad for the state. The state, on a complete state scheme, would be shouldered with an enormous expense, to be taken out of taxes. Of course, this in itself is not bad since the state is always anxious to take on more projects, paid for by more taxes. The state would have something new to think about, something new to legislate on, something new to appoint Wickersham commissions about, some millions of new items and correspondence and communications to handle. But of course to the state these reasons are not cogent; the state enjoys red tape and communications and bu-

reaus and committees and all kinds of fuss and feathers. The state would not mind State Medicine. It already has it in great measure, as Dr. Bigelow has brought out, and its scope, what with free neo-arsphenamine, free Wassermann tests, cancer clinics, tuberculosis programs for so-called hilum tuberculosis, tuberculosis sanatoria, proposed rheumatism clinics, heart clinics, etc., etc., is rapidly increasing. State Medicine in Massachusetts is already upon us, but so gradually has it come, that we of the medical profession chiefly because of our own lack of interest, have been unaware of what has been going on. Before we know it, we may have so many types of clinics and sanatoria in this state that the only practice left will be a case of acute illness or of appendicitis. And for aught we know, in twenty-five years or so, there will be no acute illness, and prophylactic appendectomies will be performed at the age of eighteen months in institutes of appendectomy. It can be surmised from the foregoing that the state would enjoy State Medicine.

But would it be advantageous to the general public and to our much maligned medical profession? In the first place, let us consider the public or rather the individual patient, because a group of patients can but rarely be taken care of en masse. It would interfere with the right of the individual to choose his own medical service. (This is true so far as real medical service goes, but of course, all kinds of quacks would sprout up, as has happened in Germany where they are multiplying at a tremendous rate.) State Medicine would interfere with that intimate and personal relationship between doctor and patient which is necessary for the complete relief of the patient's ills. The periodic health examination of State Medicine would not be worth much because it would be given on an impersonal routine basis. The individual personality of the patient, so important to a proper appreciation of symptoms, cannot be plumbed in a hurried routine examination. State Medicine would foster a race of neurotics and malingerers. There would be conscious cultivation of illness as is seen in "lodge" practice, and in many workmen's compensation claims. Again, imagine the poor patient under State Medicine going to the bureaucratic doctor or hospital and attempting to get something done! Imagine the red tape he would have to go through, the inefficiency, the blanks to be filled out, the delay, and above all the curtness he would be met with. Professional secrecy in State Medicine would disappear. Records would be the property of the state and as such could be consulted by numerous people in public life. I am afraid that the patient, entangled in the web of State Medicine, would certainly be the loser.

And now how about ourselves, the physicians? What do we stand to gain or lose by State Medicine? We would become civil servants under the control of the state, that is under the thumbs of the politicians of various parties. A change in party might result in wholesale change in the personnel of the State Bureau of Medicine and Surgery. Like all civil servants we would be paid a salary adequate to get along with, the rest being made up in the glory there is in working for the state. The "learned profession" would become entangled in a mess of red tape and would emerge a group of chastened, "routinized", certificating civil servants. How long would Dr. Haigh's "learned medical profession" which he speaks about in his articles, remain learned once it bowed to civil service and all its routine? The doctor, in order to get ahead, would have to pull wires and consult politicians. Devil take the modest one! How about medical progress? I am rather dubious about that. Whatever progress is made will be in the collection of statistics and volume of data. Real scientific progress would be made by the *good* doctors who somehow escaped civil service. State Medicine holds no real deep-seated advantages to the medical profession or the public. It might assure the doctor of a steady income but it would demean a once proud profession; it might assure every man some measure of medical service, but what kind of medical service!

Three possibilities are open in the future of medical practice: (1) State Medicine in one form or another (2) individualistic medicine as it is organized at present and (3) some form of improved, highly organized medical practice. State Medicine, I feel, has too many defects, is too repugnant to our American ideals of individualism to be carried out in this country. However, it is not to be denied that a great deal of dissatisfaction, most of it completely unwarranted, exists with present-day medical practice. The science of medicine has made tremendous strides, according to E. A. Filene, while the organization by which medicine is applied is "way behind the times"[17]. The great cry is the high cost of medical care. But the Committee on the Costs of Medical Care has found that only twenty-five per cent. of the three billion dollar health bill goes to the doctors[18]. (This twenty-five per cent. includes money to large numbers of assorted types of quacks.) The apparent high cost of doctors is due to these facts: (1) that illness strikes unexpectedly (2) that people are not prepared to pay for sudden illness since all their current income is tied up in installment buying of automobiles, radios, and electrical devices and (3) that doctors give away so much of their intangible commodity—service—free that in order to get along they have to charge more to those that pay and (4) that people want the "best" these days—they want a well-trained doctor with all the latest devices and not a poorly trained, ill-equipped man. In other words, as Follansbee[19] has pointed out, people want an electric vacuum sweeper doc-

tor. Fifty years ago they were satisfied with brooms. Is the medical profession to blame for this? I respectfully submit it is not. Rather is it the fault of the mass of people who in spending all their money on such extravagances and unnecessaries as automobiles, radios and the like, have no money left for the doctor's bill.

There are various remedies which might be suggested, chiefly in organization. Possibly, the populace could be induced by propaganda to set aside a certain part of their weekly income towards medical needs. Filene[17] suggests medical guilds—a group of ten to fifteen physicians carrying on a practice on a contract basis, the health purchaser to pay a certain amount weekly or monthly. This idea of contract practice with adequate remuneration to the physician and yet with not too much outlay from the patient is being strongly considered all over the country at the present time. It has actually begun in Cooperstown, New York, at a rate for the patient of one dollar weekly[20]. Here is medical insurance organized and run by the medical profession without state interference. If the state is really looking for more things to do in respect to medicine, it could propagandize more and induce people to save their money for medical care; it could inform the populace of the latest advances in medicine and how they might be applied; it could work out a system with the doctor whereby the physician might be paid for the treatment of the poor, as is already being done in Iowa[21]; it could pay, as has been suggested to me by Dr. Buck of this city, for all of the hospitals and the hospital expenses of the patient. This would immediately take away a very large factor from the cost of medical care.

In conclusion—there is no question but that State Medicine is something to be reckoned with. We should know something of it in order to be able to cope with it. If we would cope with it intelligently, we need an enlightened profession which not only knows the intricacies of the diagnosis and treatment of disease but is versed in the changing aspects of the social and economic scene. It might even be advisable for us of the medical profession to participate a little more freely in the various measures of preventive medicine and the public health. We need, not cool indifference, but a high degree of interest; we need, not apathy, but keen enthusiasm; we need fight—we need unity. If we can have a unified, enlightened, even somewhat pugnacious medical profession, we can fight domination whether by business men or by the state. We as a class have continually looked out for the other fellow's welfare; let us now look out for our own.

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EVOLUTION OF THE CLINICAL CONCEPT OF RHEUMATIC FEVER

BY ALFRED S. REINHART, A.B.†

THE history of rheumatism through the ages is a fascinating one. Here it is intended to stress that portion of it which depicts the successive recognition of the protean manifestations of rheumatic fever, from the point of view of the historical evolution of the present concept of the disease.

It is well known that the disease which we call rheumatic fever is one which may never exhibit acute, articular, or febrile manifestations, yet one which, if it assume its most picturesque and impressive form, may present an acute febrile stage with articular manifestations overshadowing the entire picture*. It would seem fairly obvious that the designation, rheumatic fever, is, on the whole, an inept one, a consideration which has prompted efforts to arrive at a more apt name.

Garrod[1], more than a generation ago, pointed out the great difficulties surrounding "the attempt to define the proper use of *rheumatism*", and more recently Sacks[2], and Paul[3] have suggested the chaotic state of the nosology even today. Wiesel[4] has enumerated approximately eighty morbid conditions which have been described under the heading "rheumatism". The United States Bureau of the Census dropped the term "acute articular rheumatism" in 1920 (which it had used in its mortality reports since 1900) and substituted for it "rheumatic fever"[5]. The designation "rheumatic fever" was used in the *International List of Causes of Death* printed in 1902, and has appeared in each succeeding issue of this manual. The *Index Medicus* changed "rheumatism" to "rheumatic fever" in 1903[7]. The Rheumatism Committee of the Medical Staff of the British Ministry of Health in 1924 adopted the terms "acute" and "subacute rheumatism", the former being synonymous with rheumatic fever, and the latter including rheumatic purpura[6]. This classification has been generally followed in the subsequent British reports[7]. As late as 1927 the *Quarterly Cumulative Index* changed the designation "acute articular rheumatism" to "rheumatic fever". Bach[8] has suggested the term "rheumatismus infectiosus specificus", and Poynton and Schlesinger[9], "rheumatism of childhood". There are disadvantages to both of these terms. Coburn[10], in his excellent new book on the subject, has proposed the phrase "rheumatic state".

In the remainder of this paper, in accordance with the suggestion of Sacks[2], the term, rheumatism, is employed as synonymous with what is commonly known, especially in the United States, as rheumatic fever.

The word "rheumatism" is derived from the Greek verb, Péo, meaning to flow. The ancients regarded rheumatism as a catarrh, and a catarrh was an ill humor which flowed down from the head—a defluxion which settled in the affected part. As an excellent characterization of this conception one might adduce the following passage from the Schola Salernitana[11]:

> "A cold [rheuma] whose ill effects extend as far
> As in the chest is known as a catarrh;
> Bronchitis, if into the throat it flows;
> Coryza, if it reach alone the nose."

It was in this sense that the word "rheumatism" was used by the writers of old[12], such as Galen, Paul d'Egine, Alexander of Tralles, Aretaeus and Coelius Arelianus.

There is no reason to suppose that rheumatism did not exist in antiquity, although to be sure, Biblical references[13] are unconvincing. Hippocrates[14] writes suggestively of rheumatism in numerous places, but the following passage, in particular, appears convincing: "Dans l'arthrite, la fièvre survient, une douleur aiguë s'empare des articulations du corps, et ces douleurs, tantôt plus aigues, tantôt plus douces, vont se fixer tantôt sur une articulation, tantôt sur une autre . . . elle est de courte durée et aiguë, mais non mortelle; elle attaque les jeunes plus volontiers que les vieux." Chomel[15] adopts a reasonable attitude when he says, "Qu'importe que le nom ne fût pas le même qu'aujourd'hui. Il n'est pas moins certain que la chose existait."

The word "rheumatism" in its modern sense was first used by Ballonius[16], who, indeed, also distinguished that condition from gout, although, according to Van Swieten[17], this distinction was probably originally made by Aretaeus[18], centuries before. Delpeuch[59], in his most scholarly treatment of the historical phases of rheumatism and gout, holds that both rheumatism and the distinction between rheumatism and gout were certainly well known and written about before Ballonius. "On a pris à la lettre l'affirmation audacieuse de Baillou que l'affection décrite par lui était resté jusqu'à son livre, anonyme et méconnue." Sydenham[19] also differentiated rheumatism and gout, but did not mention Ballonius. Boerhaave[17] spoke of rheumatism in every edition except his first two, but added little to Sydenham's description of the condition outside of the important observation that the disease sometimes invades the brain, lung and bowel. To Boerhaave, then, goes the distinction of being the first of

*There is a growing literature dealing with the mild or negligible manifestations of rheumatic disease in individuals, especially children, who in later years show definite signs of rheumatic involvement.

†Reinhart—For record and address of author see "This Week's Issue", page 1225.

the modern writers, at least, to recognize definitely the possibility and actual occurrence of extra-articular manifestations of rheumatism. "It seems justifiable," says Paul[3] "that he [Sydenham] was aware that the joint symptoms alone did not tell the whole story, but he was probably so anxious to identify the condition as a distinct clinical entity, recognizable on the basis of polyarthritis that he has perhaps avoided, as far as possible, any statements with regard to vague and ill defined internal lesions which might serve to obscure the picture."

Sauvages[20] suggested a division of rheumatism into ten categories (as well as gout into fourteen); but the classification is of no value from the scientific point of view. With the names of Heberden[21] (1782), Cullen[22] (1795), and Haygarth[23] (1805) are associated the distinction between acute and chronic rheumatism. Scudamore[24] (1827) divided the former category into acute and subacute. Chomel[25] (1837) spoke of muscular, articular and internal rheumatism; while Fuller[26] (1852) made a classification of acute rheumatism, chronic rheumatism, neuralgic rheumatism and rheumatic gout.

One of the first viscera to be definitely recognized as being attacked by the rheumatic process was the heart. Paul[3] would assign the "first definite intimation of the presence of the signs and symptoms of cardiac disease" to Störck[27], although the latter did not recognize the existence of the heart lesion. Although pathological changes in the aortic valve had been described as far back as Bertoletti (d. 1630) and Morgagni (Lib. II, Epist. XVIII, Art. 4[28]), and mitral stenosis by Mayou[29] in 1669, the distinction of observing the association of such lesions with rheumatism belongs to Pitcairn[30] (1788) and Jenner[31], who made the observation independently the following year. It remained for Bouillaud[32], eminent clinician of the nineteenth century to emphasize the association of the two conditions. Libman[33] and Thayer[34] have recently called attention to the high incidence of tricuspid involvement in rheumatic endocarditis, occurring as it did in 66% of Libman's and 44% of Thayer's cases, and Holsti[35] has described histological changes in the tricuspid valve. Gross, Antopol and Sacks[36] found Aschoff bodies in the tricuspid valve in practically the same number of cases as in the mitral valve. Coombs[37] found pulmonary valve involvement in about 2% of his series. Pericarditis was first recorded by Wagstaffe[41] in 1803. Myocarditis was recognized by several observers[39] around 1875, but it remained for Aschoff[40], in 1904, to describe the histological nodules which have since borne his name, and which, in their characteristic form, are generally accepted as being pathognomonic of rheumatism. Later myocardial[11], as well as pericardial[42] involvement, was recognized by electrocardiographic evidence. Auricular endocarditis was definitely described by MacCallum[43] in 1924, although Von Glahn[44] states that the lesions described by Claude and Levaditi[45] in 1898 possibly represent examples of rheumatic endocarditis. Aschoff lesions in the pericoronary adipose tissue[46] in the epicardial fat around the pulmonary artery[47], as well as in the various fatty tissues about the heart[48], have recently been reported.

Chorea was described by Sydenham[49] in 1686, and Boerhaave as we have seen, noticed the brain involvement in rheumatism, but it was not until the beginning of the last century that chorea was definitely recognized as a part of the rheumatic syndrome[50].

Rheumatic arteritis and phlebitis were recognized by Bouillaud[51], in 1840, who said, "Les vaisseaux des membres frappés d'un long et violent rheumatisme que s'est terminé d'une manière funeste, les veines surtout présent assez souvent, comme le démontrent plusieurs de nos observations, des altérations plus ou moins profondes, soit que ces vaisseaux aient été frappés eux-mêmes d'inflammation rheumatismale, soit que l'inflammation rheumatismale des articulations et des muscles se soit propagée jusqu'à eux par voie de contiguité." Klotz[52], in 1912, first described a characteristic rheumatic aortitis. Von Glahn and Pappenheimer[53] in 1926 described lesions of the peripheral arteries and arterioles in the lungs, aortic valve, kidney, perirenal and periadrenal adipose tissue, appendix epiploica of the sigmoid colon, ovary, testis, pancreas, and a small polyp of the cecum. The following year Pappenheimer and Von Glahn[54] reported characteristic alterations also in the aortic superior mesenteric and renal vessels, as well as in the coeliac axis. Gotthardt[55], in 1896, described an endarteritis of the pulmonary artery which was most likely rheumatic in nature; while recently Paul[56], and, more especially, Kugel and Epstein[57] have been able to demonstrate clearly such lesions. Rheumatic aortic aneurysm was described by Rénon[58] in 1906.

Rheumatic infection played a part in the causation of several of the cases of coronary aneurysm reviewed by Packard and Wechsler[60]. Slater[61] has recently reviewed the story of other forms of coronary rheumatic arteritis, and has described syndromes characteristic of true coronary thrombosis. Stettner[62] has advanced the thesis that in rheumatism there exists a constitutional capillary weakness. "The recent studies upon the auricular lesions," say Pappenheimer and Von Glahn[54], "have made it apparent that the rheumatic infection may be evidenced by a diffuse response as distinctive in its cellular composition and arrangement as is the Aschoff nodule or the endocardial verruca." And again, "The pathology of rheumatic infection does not begin and end with the Aschoff nodule."

Recognition of the rheumatic subcutaneous nodules, as such, dates back at least to Sau-

vages[63], who spoke of "tumeurs molles, de même couleur que la peau", and Haygarth[64], who described subcutaneous nodules on the extensor surfaces in subacute rheumatic infections, a finding confirmed later by Wells at St. Thomas' Hospital[64], while Jaccoud[65] gives credit to Froriep (1843) for first noticing the association of the nodules with rheumatism. Hillier[66], however, is usually credited with being the first to describe the nodules accurately, and Meynet[67] with associating them with rheumatism. Hirschsprung[68], a few years later, was the first to describe them histologically. Many of the older descriptions of rheumatic periostitis in all probability referred to the nodules. It may be added here relative to the yet not well understood relation between scarlet fever and its arthritic sequelae that the typical rheumatic subcutaneous nodules are frequently found in the latter condition[69]. Much has been written of "scarlatinal rheumatism", but the association of the two diseases is not clear.

The cutaneous manifestations of rheumatism were among the earliest signs of the disease recognized. In fact, Roudaire[70] would trace the history of cutaneous eruptions in articular rheumatism back to Hippocrates. Besnier[71] credits Haygarth as the first to describe them in more modern terms. Schönlein[72] described a "peliosis rheumatica" (purpura rheumatica), which, however, is not recognized as a true purpura by Garrod[73], who himself recognizes "a form of rheumatic erythema which is hemorrhagic from the first, and to this form I would limit the use of the term purpura rheumatica". Shapiro[74] has recently reported a case in which the purpura was confined entirely to the urinary tract. Rayer[75], in 1835, called attention to the association of erythema (roseola rheumatica) and rheumatic arthritis, and spoke also of nodose and urticarial signs, while Begbie[76], in 1850, noticed more especially the same association in the case of erythema nodosum. Schloss[77] has reëmphasized the rôle of urticaria in rheumatism, while Bass[78] has reviewed the various erythemata (marginatum, papulatum, exudativum, multiforme, etc.). Sacks[79], in his careful review, states that "critical analysis of the reported cases leads to the conclusion that extensive skin eruptions in rheumatic fever are not very common but do occur".

Benzançon and Weil[80] believe that, next to cardiopathy, pleurisy is the most frequent visceral manifestation of rheumatism. It is difficult to separate historically the purely pleural from the purely lobar manifestations of the disease. According to Ball[81], pulmonary affections in rheumatism were known to the ancients. Rheumatic pleurisy was mentioned by Ballonius[82] in 1635, but (together with pneumonia) was first treated by Stoll[83] about a century and a half later. Naish[84] has described lung lesions which he believes to be peculiar to rheumatism.

Mosler[85], in 1910, used the term "polyserositis rheumatica" to describe the inflammatory manifestations in the serous tissues of the body, but referred especially to pericarditis and pleuritis. The same clinical picture had already been described, however, by Duroziez[86] under the name of "péricardo-pleuritis". The importance of the peritoneal manifestations of rheumatism, which were apparently first noticed by Andral[87] in 1829, is receiving increasing attention in the literature from the point of view of differential diagnosis.

Other serous membranes infrequently affected by the disease are the tunicae albuginea and vaginalis. Rayer[94] had spoken of "une douleur dans le testicule", but Macleod[89], in 1842, first described "acute pain in one testicle, coming on suddenly, accompanied by increased heat, and by tenderness to the touch, but without tumefaction, the symptoms shifting from one testis to the other, and at last disappearing as suddenly as they had come on—just in the manner we see rheumatism change from one joint to another". Bouisson's[90] later paper, however, is considered the most important of the earlier observations on rheumatic orchitis, a series of which appeared from 1845-51.

Rheumatic meningitis was reported by Störck[91] in 1761. From an examination of the later literature Garrod[92] concludes that meningitis is a rare but certain manifestation of rheumatism, an opinion with which Osler and McCrae[93] agree. One ought to insert here mention of the cerebral accidents, such as cephalalgia, delirium, insanity and apoplexy, which have at one time or another received attention in the literature[94], and which Garrod regards as being primary rheumatic manifestations. It is interesting to note that the hyperpyrexia of rheumatic fever, first emphasized by Kreuser[95] in 1866, is no longer a significant manifestation of the disease[96].

Condere[97] reviewed the literature on rheumatic nephritis, many years ago, and accepted the existence of such a pathological state. The first description of so-called rheumatic nephritis —that by Rayer[98] in 1840—was undoubtedly really one of subacute bacterial endocarditis. Chalier and Délore[99], who have recently reviewed the subject of rheumatic nephritis, credit Johnson (1854) with the report of the first indisputable case. To what extent the presence of edema[100], and, indeed, the cerebral symptoms frequently reported in rheumatism, owe their origin to primary nephritic involvement is difficult to say. Fahr[101] believes that rheumatism is an important cause of nephritis. Veil[102] also has expressed his views on the close association of the two conditions.

Rheumatic sore throat was noted by Stoll[103], and even earlier Dryden[104] had referred to the association of tonsillitis and rheumatism. Ocular symptoms were probably first noted also by

Stoll[105] in 1809, and Burucua[106] observes that, although authentic cases of rheumatic ocular involvement are rare, they do occur. Laryngeal symptoms were first emphasized by Emery-Débrousses[107] in 1861. Rheumatic thyroiditis first began to be reported in the 1870's[108]. Ball[109] would trace a rheumatic jaundice back to Bianchi[110] in 1725, but this condition has not received much attention in the later literature. However, French[111] includes rheumatism (rheumatic fever) as a possible cause of jaundice, and Poynton and Schlesinger[112] note the association of jaundice and rheumatic carditis (acute), suggesting the influence of a rheumatic toxic factor. Dory[131] has also recently collected several cases of rheumatic jaundice.

Van Bogaert and Mage[113] have recently interpreted the manifestations of rheumatism in terms of an affection of the vegetative nervous system. Peripheral nervous manifestations of the disease have long been known, and one continues to meet such reports in the literature as those of Reinhold[114] and Dufour and Blondel[115] of facial and radial nerve paralyses respectively.

It is always problematical how much reliability may be imposed in the older descriptions and case reports of rheumatic dysenteries and the like, but such reports have a long historical basis[116]. It is certain that in children the outstanding presenting symptom of rheumatism may be abdominal in character, and simulate acute surgical conditions, as has been emphasized by various English observers such as Donkin[117], Williams[118], Still[119], Pearson[120], and Poynton[121]. In fact Pearson goes so far as to speak of a rheumatic appendicitis. Worms[130] has recently reported three cases in which a diagnosis of acute appendicitis had been made, a normal appendix and intestine had been revealed at operation, and a typical rheumatism had developed in several days.

Rheumatic torticollis, which has been frequently reported, Williams[118] attributes to either "simultaneous affection of the muscles or to their contraction to protect the painful part". Coombs[122] has reported lesions in the synovia of the shoulder joint "absolutely similar in essentials" to those found in the heart. Fahr[101] has described lesions in the knee joint capsule similar to those in the myocardium, and Swift[123] has seen them also in the ankle capsule. Strassburg[124] describes rheumatic lesions in the galea aponeurotica. Huzella[125] reports what are apparently Aschoff foci in striated muscle; Shaw[126] reports the finding of Aschoff nodules in the diaphragm, the superior constrictor muscle of the pharynx, and in the outer layer of the fibrous capsule of the tonsil; while Fahr refers to the finding of rheumatic lesions in tendons, periostea and fasciae.

Affections of the nasal mucous membrane, internal and middle ear[121] and mastoiditis[127] have all been reported as manifestations in rheumatism. Epistaxis[128] has very long been known to exist in rheumatic individuals.

It is generally accepted that rheumatism has been steadily decreasing in severity for many years. Sklodowski[86] has suggested that rheumatic infection may manifest itself only in the form of fever, which may subside in an occult manner, and Ramond[129] has reported such a case. In this respect it may not be too different from other infections of childhood.

We believe that the apparent clinical rarity of some of the manifestations listed above will become less marked as clinicians in the future pay more special attention to, and look more carefully for, their presence*.

*The fact that Coburn in as small a series as one hundred and sixty-two cases has found almost every manifestation described here seems to be ample justification for this opinion.

SUMMARY

The extra-articular and the extra-cardiac manifestations of rheumatism have been receiving increasing attention and recognition.

In this paper we have reviewed the historical growth of the conception of a disease from a local affection to a generalized affliction.

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SHIP'S HOSPITAL ORGANIZED AS CLINIC

Southampton, Eng. May 27—Something new in marine hospitals made its bow to the medical world here today when the "Empress of Britain," new 42,500-ton flagship of the Canadian Pacific line, steamed for Quebec on her maiden voyage, carrying below decks a medical clinic designed on metropolitan lines, complete even to hydrotherapy and dental and surgery and capable of meeting the medical emergencies of 1500 passengers and crew. There is even a chemist's shop (drugstore).

Under the direction of Dr. A. Gardner, well-known to Atlantic voyagers, this sea-going hospital and clinic represent the latest and most advanced medical thought in Canada and Great Britain, as they were installed only after the plans and equipment had been carefully studied in both countries by the professional organizations most immediately concerned.

An operating theatre, a hospital with delivery room, an isolation hospital, a dental department with surgical room, an ultra-violet ray room, and a Roentgen-ray room, are grouped in units around the large waiting room for patients and the consultation rooms of the doctor and his staff. Hydrotherapy is provided in a special section of the ship's bath equipment. Dietetics is handled in the main cuisine.

The hospital and clinic have outside, natural daylight in addition to the special hospital artificial lighting. A complete change of air every hour, in volume equivalent to 200,000 cubic feet of fresh air per patient, is provided by a special unit of the ventilating system. Heat is provided by a vacuum system and regulated from a special device installed within the clinic. Music from the ship's orchestra, and radio concerts from shore stations picked up by the ship's transocean wireless, are relayed to the patients in the hospital just as they would be in a hospital on land. Patients are not anticipated in numbers, but their wants are.

To complete the picture, those two details without which no modern hospital apparently can operate—flowers for patients and telephone calls from anxious relatives—are provided for by a florist shop on an adjacent deck and by the telephone at each patient's bedside, these telephones connecting through the ship's switchboard with the transocean telephone exchange on the top deck, so powerful it can talk directly to any telephone instrument in the world, the calls going through London, Montreal, and New York, via long distance.

The laboratory and case record equipment have been installed with the thought of eventually building up enough clinical material for study of marine complications of such ordinary disorders as are the routine of medical practice among travellers. The nursing personnel are veterans of the Atlantic service.—*Canadian Pacific Ry. News.*

VERMONT STATE MEDICAL SOCIETY

THE TREATMENT OF COMPOUND FRACTURES*

BY GEORGE ADAMS LELAND, M.D.,† BOSTON

THE treatment of compound fractures, as in times past, will always command the interest of every physician and especially the interest of surgeons.

A compound fracture is an emergency that demands immediate effective treatment. Such treatment is only second in importance to artificial respiration and the control of serious hemorrhage. Death may not always follow improper management of compound fractures, but prolonged suffering of the patient, and the loss of a limb anatomically or functionally are possible calamities that challenge the utmost effort.

Lister, in the Crimean War, and Carrel, in the World War, focussed their attention upon combating infection. The importance of this aspect in treatment cannot be overestimated. At the same time, there are other considerations which must demand attention. No hard and fast rules can be laid down for all cases, any more than can positive rules be made for the number and position of drainage tubes in acute suppurative appendicitis. There are, however, certain underlying principles which obtain in all cases.

In general, there are three major postulates that must be adequately covered. They are the treatment of the fracture, the treatment of the skin wound, and the treatment of the deep wound. This last phase may be further subdivided into prophylaxis against infection, and the treatment of infection when it occurs.

THE FRACTURE

The fracture itself in compound cases is usually more serious and complicated than in similar simple fractures. The fracturing force is greater in compound cases. There results either great separation of fragments or comminution, or perhaps both. Not alone is the bone injury more serious but there is also a correspondingly greater damage to the soft parts.

Damage to muscles and joint ligaments per se diminishes the natural splinting effect of these structures. In some instances, this loss may may make the actual reduction by manual manipulation easier, but by the same degree renders the maintenance of reduction more difficult. For this reason, some form of splintage in which traction may be adequately maintained, should be used when possible. The Thomas splint as such, or in one of its modified forms, is admirably suited to meet these requirements.

Extensive soft part laceration also presupposes circulatory disturbances. Stripping away of periosteal attachments, division or thrombosis by compression of major vessels, are serious handicaps to the promotion of union and may result in severe sepsis necessitating amputation.

Time is a most important factor in the reduction of any fracture. Too often simple fractures are allowed to remain unreduced or improperly reduced over days or even weeks. Fortunately, this is not the case in compound fractures. The presence of a wound precludes delay of any sort other than that necessary to combat shock and to effect transportation of the patient to surroundings where adequate care may be given. During transportation, absolute immobilization of the injured limb is imperative. Joggling of the fragments not only causes unnecessary pain, and therefore more shock, but may readily spread contamination and infection. Early reduction within a few hours, whether for compound or simple fracture, is relatively easy and places the unfortunate patient upon the right road for early restoration of function. Accurate x-ray records both before and after reduction are essential, not alone for the benefit of the patient but also for the protection of the physician.

THE SKIN WOUND

The treatment of the skin wound, of course, implies the application of the best means available to carry out asepsis and antisepsis. The skin surrounding a compound wound should be cleansed at the earliest possible moment with some grease-removing solvent. Gasoline, benzine, ether, soap solution or chlorinated soda, are all efficient. Preference, perhaps, is given to benzine or ether, as they require less fluid, and hence less rubbing is necessary. Care in avoiding a chemical poultice to the skin precludes any escharotic effect. The wound itself should be covered with sterilized material as soon as possible. Whether an antiseptic should be previously applied is a point about which considerable argument exists. There is no question but that certain chemical antiseptics cause definite damage to growing tissues. Iodine in a large wound is certainly to be avoided on account of the pain it produces. Certain of the coal-tar dyes are effective and painless. Dakin's Solution or five-tenths per cent. sodium hypochlorite is admirable. Skin abrasions elsewhere on the limb should receive the same careful attention. Otherwise, superficial sepsis may occur which may prove disastrous. In cases where the compound wound is minute, and when it is obvious that no contamination from without has taken place, this treatment is sufficient, and

*Read October 3, 1930, before the Vermont State Medical Society at its Annual Meeting at Burlington, Vermont.

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the reduction of the fracture may then be undertaken. In cases where operative procedures may be indicated, this treatment will in no way hamper the further application of antiseptics.

Before any exploration of the wound or reduction of the fracture is attempted, the general condition of the patient must be considered. Shock should be combated in the usual way of morphinization for pain and support of the circulation by normal saline or blood transfusion.

Tetanus antitoxin should be administered at the earliest possible moment by intramuscular injection of 1500 units into the proximal portion of the injured limb. The immunity thus conferred lasts about 2-3 weeks. In cases of sepsis it is not expedient to rely upon a single injection. Additional doses should be given every week to ten days.

THE DEEP WOUND

The treatment for prophylaxis against infection begins with the treatment of the superficial skin wound. Those cases where the wound is large, and always in those where dirt and hence infection may have been carried into deeper parts or where even with a small wound there is any possibility that a bone fragment has come through the skin and has receded, operative exploration of the deep wound is imperative. Such an operation requires the muscular relaxation and freedom from pain obtained only by a general or regional block anesthesia. The purpose of this operation is first to cleanse the entire wound, including the skin, fat, muscles and bone of any pyogenic vehicles, and secondly, to evacuate hematomata and remove all devitalized tissue. Traumatized skin and subcutaneous fat are easy prey for pyogenic bacteria. Blood clot lurking in the intramuscular spaces is potential culture media for the tetanus bacillus. Damaged muscle fibre promotes the growth of gas bacilli and permits this infection to travel up the muscle planes with great rapidity. These soft part structures should be excised with sharp instruments when there is evidence of devitalization or contamination. The removal of bone fragments should not be undertaken with the same abandon with which soft parts may be excised. Comminuted fragments not completely detached from muscle or periosteum should be preserved. They aid in promoting union. Large fragments should always be retained, as many will live. Removal often results in non-union. Ragged edges of bone should be rongeured. Small unattached fragments in joints should be removed.

This procedure of early wound excision, called debridement, attained great prominence during the World War. The terrific damage ensuing from the contact of swiftly moving objects, both large and small, with human tissues, necessitated radical procedures. The violence of civil injuries does not ordinarily require debridement to the same degree. Nevertheless, its principles are efficient and should be made use of in every case of compound wound that demands exploration. In carrying out these principles, care must be exercised that infection should not be carried to the depth of the wound by instruments. Changes in scissors, forceps, gloves, by the surgeon and his assistant, are indicated. Following debridement the entire wound should be washed out with some bland solution such as normal saline, sodium hypochlorite, or soap and boric acid solution, in order to remove mechanically small particles of fat and other tissue.

REDUCTION OF FRACTURE

The fracture is now ready for final reduction. With the wound wide open and the fragments exposed, little difficulty is encountered in completing a perfect picture puzzle approximation unless there has been great comminution. On the other hand, as already stated, the same factors which render this reduction easy may render maintenance of reduction difficult. In compound fractures it is extremely important to obtain and retain this accuracy of reduction. Dead spaces in the soft parts for accumulation of serum and sepsis must be avoided. The broken bone has been subjected to devitalization in many ways. Accurate approximation will assure against delayed or non-union. Traction on the distal portion of the limb with suspension in a Thomas splint and Balkan frame solves this difficulty admirably.

In the lower extremity, skeletal traction should preferably be used. In the upper extremity, skin traction will usually suffice. The use of plaster casts should be reserved only for those cases in which the compound wound is trivial and in which the reduction of the fracture by manual manipulation is readily attainable. Plaster casts hamper the diagnosis and treatment of sepsis and accordingly should ordinarily be avoided.

Occasionally traction is not efficient. Especially is this noted in fractures near or entering joints. Internal fixation is then indicated and should be used fearlessly. It is much better to use foreign body fixation to obtain accurate bony approximation than to omit such material at the expense of the subsequent alignment and position. It must be remembered that when steel bone plates and bands are used, absolute rigidity must be obtained. A loose foreign substance in a compound fracture invites disaster. When such foreign materials are used the skin wound should never be closed tight. In some locations such as patella and olecranon, compound fractures may be repaired with fascia lata. This type of fixation does not act as a foreign body and is resistant to infection. A joint wound should always be sutured.

CARREL-DAKIN TREATMENT

With the fracture reduced and form of fixation determined upon, the question of complete closure of the wound, or partial closure with drainage, is now to be considered. Any wound that requires debridement is one in which infection must be feared. When the damage has been severe, or the tissues contaminated, such a wound should be properly dressed with Carrel tubes. Irrigation with Dakin's Solution should be commenced immediately after operation is completed. Carrel tubes should be allowed to remain in situ for at least ten days, until danger of infection has passed, as noted by smears and cultures. The placing of these tubes is most important. They should be tamponed in the wound with thin strips of gauze or boric ointment compresses. They should be applied so that there is an easy exit for the escape of instilled fluid. Irrigation through one-way channels has been known to push infection up through tissue planes. When Carrel tubes are used, the skin should never be approximated. Often it is difficult to approximate the skin at all on account of the debridement. Tension in skin is always to be avoided. Bone exposed through skin defects is better treated by Carrel-Dakin than by any plastic flap in most instances. Rubber tissue drains invite infection. They are not efficient in combating infection when it occurs.

COMPOUND FRACTURES OF BOTH BONES OF LEG

To illustrate these principles in the treatment of compound fractures, the following statistics on compound fractures of both bones of the leg are presented.

There were twenty-two cases of this type treated on the Fracture Service of the Massachusetts General Hospital during 1924-1927. This group is chosen because it contains the largest number (approximately one-third of all compound fractures) during that period and is perhaps the most important group because of likelihood of sepsis. These cases have been carefully followed and the end results of twenty-one cases have been recorded according to the M. G. H. End Result Classification. According to this classification, the end results are rated under three headings: Anatomical, functional, economic. The highest mark obtainable is 4—the lowest 0. Anatomical imperfections of shortening, bowing, misalignment, are factors which diminish the rating one point per each 25% of deformity. Functional impairments of joint mobility, faulty weight bearing, limp, etc., are similarly rated. The economic result depends on whether the patient has maintained his former capacity for work and earning power.

Of the twenty-one completed cases, eleven had perfect results of A4 F4 E4. Three others were recorded with perfect economic ratings but lacked perfection anatomically or functionally, as follows: A3 F4 E4; A4 F3 E4; A3 E3 F4. The results in these fourteen cases may be considered as satisfactory.

THE TREATMENT OF COMPOUND FRACTURES

BOTH BONES OF THE LEG

Result	Number	Debridement	Dakin's	Traction	Plaster*
Excellent	11	8	5	8	3
Good	3	1	0	0	3
Poor	2	0	0	0	2
Amputation	5	3	1	1	4
Total	21	12	6	9	12

*Included under this heading are two cases treated in Thomas splint without traction.

The treatment given these 14 cases was as follows: All cases received treatment on the day of injury. Five had skin wound treatment without debridement, and of these, four were placed in plaster casts, and the fifth had a Steinmann pin applied to the os calcis.

Nine wounds were debrided. Of these, five were treated by the Carrel-Dakin technic. Reduction of these nine cases was maintained by Steinmann pin traction in seven cases, by the Sinclair skate in one case (ankle slightly limited in mobility) and by a plaster cast in a child of seven years in one case.

The complications consisted in wound sepsis in one case debrided elsewhere before entrance, necessitating prolonged Dakinization and five months' sojourn in the hospital. In another case, there was slow healing but no sepsis. In a third, there was slight but inconsequential sepsis at site of Steinmann pin hole.

The hospitalization of these cases averaged seven and one-half weeks. Steinmann pin cases were transferred to plaster casts usually from four to six weeks. Complete immobilization was maintained about three months. Weight bearing was guarded by crutches with caliper or plaster protection to injured limb for one to three months longer. The earliest return to work was in four and one-half months, with an average of six and one-half months.

There were seven cases in which the results were not satisfactory. Two cases were rated as: A2 F3 E3 and A2 F1 E0. Both entered the Massachusetts General Hospital approximately three months after having received treatment elsewhere. In neither case had debridement nor skeletal traction been undertaken. Imperfect reductions, complicated by sepsis, gave the poor result noted.

In five cases, amputation became necessary, and one of them died. As these results represent failures, a brief review is illuminating.

CASE 1—(P. G. O. 261481) A man of 40 received a crush between box and freight car. He entered the hospital with four inches of tibia protruding through skin wound. The wound was debrided and closed without Carrel-Dakin treatment.

Postoperative sepsis occurred immediately and a Gritti-Stokes amputation was performed, eleven days after injury.

CASE 2—(D. F. W. S. 261736) A boy of 15 was struck by automobile. The compound wound was small and was merely carbolized at entrance. One week later hematomata were evacuated. At the end of the second week streptococcus viridans was found. Amputation was performed four days later.

CASE 3—(G. H. W. S. 262226) A man of 58 received the full weight of heavy iron bucket on his leg. During debridement, division of posterior tibial artery was disclosed. Debridement and Carrel-Dakin treatment were instituted. Two days later patient pulled off whole dressing with tubes, detached Steinmann pin calipers from heel, and pulled leg out of Thomas splint. Sepsis ensued and amputation was performed through site of fracture on fifteenth day. (Later reamputated.)

CASE 4—(A. M. W. S. 266284) A man of 56 entered with septic leg encased in plaster cast twelve days after automobile injury. Three days later the first signs of tetanus appeared and amputation was performed. Large doses of intravenous and intraspinal antitoxin were used, and although the tetanus symptoms seemed to improve, the general condition of patient could not withstand the sepsis superimposed on his other difficulties and he died on the second day following amputation.

CASE 5—(E. F. O. 272453) A man of 27 was struck by automobile. At debridement several bone fragments were removed. No Carrel tubes applied, and wound closed tight with plastic skin flap. Sepsis, followed by hemorrhage, was evident on fifth day. Amputation was performed on eighth day.

The hospitalization in these amputated cases averaged ten weeks.

SUMMARY

It is to be noted that of the twelve cases debrided, six received Dakinization, and six did not. Of the latter, two cases were failures and resulted in amputation.

Of the six Dakinized cases five were successful. The only failure was that of the man who removed the tubes and apparatus soon after operation.

In the eleven cases with perfect scores, seven were treated primarily by traction, and four were treated in plaster.

In the five cases with imperfect scores due to bone deformity and joint disability, none were treated by traction.

The five amputations were necessitated by sepsis. The prophylaxis against infection was not complete. The two debrided cases were not Dakinized, and two cases were not even debrided. The fifth case, although started right by debridement and Dakinization, invited trouble when he tore off all apparatus.

CONCLUSIONS

This series of compound fractures of both bones of the leg would seem to warrant the following conclusions:

1. Debridement carefully carried out is a safe and satisfactory procedure.

2. Carrel-Dakin technic is effective when promptly applied and properly used.

3. Skeletal traction by Steinmann pin applied to the os calcis is a most valuable method of maintaining reduction. It also tends to maintain joint mobility and permits efficient control of sepsis.

4. All cases should receive tetanus antitoxin. The dose should be repeated when suppuration occurs.

5. The correct application of these procedures should, in the majority of cases, result in an early and satisfactory restoration to normal function.

MISCELLANY

BURLINGTON AND CHITTENDEN COUNTY MEDICAL SOCIETY NOTES

At the annual meeting of the Windsor County Medical Society, held at Springfield, Vt., Dr. C. H. Beecher spoke on "Pericarditis" and Dr. H. A. Durfee on "Prenatal Care, with special reference to changing the position of the fetus in utero."

Dr. Clifford Atherton Pease died very suddenly Sunday morning, May 24, of coronary thrombosis with occlusion.

Dr. S. A Wilson of Burlington addressed the Society on Thursday, May 28. His subject was "Radiology of the Gall Bladder."

Dr. O. N. Eastman returned recently from a six weeks' tour of the European clinics.

WINDSOR COUNTY MEDICAL MEETING

The annual meeting was held at the Adnabrown Hotel in Springfield, Vt., on May 7, 1931. Luncheon was served at 1:15 P. M., twenty-four members and guests being present.

The meeting was called to order at 2:15 P. M., Dr. Patch in the chair.

The committee on appointments nominated the following officers, who were duly elected:

President: A. B. Woodman.
Vice President: C. P. Munsell.
Secretary and Treasurer: A. C. Walker.
Delegate One Year: A. M. Cram.
Delegate Two Years: A. L. Patch.
Alternate: S. L. Garipay.
Censors: H. C. Jackson and O. C. Eastman.
Resolution Committee: I. R. Doane and B. A. Chapman.

Following the meeting a very interesting program of much practical value was presented by Dr. C. H. Beecher on "The Diagnosis of Pericarditis" and by Dr. H. A. Durfee on "Advances in Obstetrical Practice During the Last Decade," stressing particularly the care of the patient before delivery.

Meeting adjourned at 3:40 P. M.

VERMONT DEPARTMENT OF PUBLIC HEALTH

APRIL, 1931

The following communicable diseases were reported to the Department of Public Health during the month of April: Chicken pox 79, diphtheria 1, measles 13, mumps 98, scarlet fever 30, smallpox 2, undulant fever 1, whooping cough 97 and tuberculosis 20.

The Laboratory of Hygiene made a total of 1530 examinations during the month, classified as follows:

Examinations

For diphtheria bacilli	144
For Widal reaction of typhoid fever	23
For malarial parasites	2
For tubercle bacilli	266
For evidence of syphilis	399
For gonococci in pus	118
Of blood for contagious abortion in cattle	90
Of water, chemical and bacteriological	70
Of water, bacteriological	129
Of milk, market	81
Of milk, submitted for chemical only	12
Of milk, submitted for microscopical only	18
Of milk, submitted by Department of Agriculture for hemolytic streptococci	55
Of foods	28
Of drugs	0
For the courts, autopsies	5
For the courts, miscellaneous	15
Autopsies to complete death returns	1
Animal heads for evidence of rabies	1
Miscellaneous	73

Forty-two cases of gonorrhea and thirty-two cases of syphilis were reported to the Division of Communicable Diseases. Three hundred and fifty-two Wassermann outfits and 290 slides were sent out by this Division.

Forty-nine patients were seen by the nurses in the After-care of Poliomyelitis. Fifty-seven home visits were made, 1 plaster cast removed, 2 patients discharged from the Children's Hospital, 6 pieces of apparatus fitted, 11 pieces of apparatus altered or repaired, 16 orthopedic corrections made to shoes. Twenty patients were visited by the vocational worker of this division. Sales amounting to $59.14 were made during April by the vocational worker.

The State Advisory Nurse visited several towns in the interests of the Maternity and Infancy Division. Arrangements have been made with various organizations and individuals for the observance of May Day.

THE DISCOVERY OF IODINE IN CALIFORNIA

Iodine has been found in Southern California in brackish waters from oil wells in commercial quantities. The amount is not large enough however to compete seriously with the supply from South America; the product from the latter country is a practical monopoly and dictates the price.

The recovery of the California product involves interesting chemical processes.

NEW SERUMS DEVELOPED BY STUDY OF BACTERIAL TOXINS

A new kind of toxin which may mean great progress in the cure of infectious diseases has been reported by Dr. Gregory Shwartzman, of the laboratories of the Mount Sinai Hospital in New York City to the Society of American Bacteriologists. Since the discovery of the toxin or poison of diphtheria and the development of an efficient anti-toxin serum for it, that disease has been effectively combated, but similar methods when applied to other diseases have given effective results in only a few instances. The whole problem had come somewhat to a standstill and many leading investigators had lost faith in the future of such work.

Dr. Shwartzman's discovery of a totally new type of toxin formed by many bacteria opens the field again and puts the whole problem of the production and standardization of curative sera on an entirely new basis. These toxins are found, Dr. Shwartzman reported, in the washings from the bodies of the bacteria and are capable of producing peculiar reactions when injected into the skin of experimental animals.

A few drops of the toxin are injected into the skin of a rabbit and after twenty-four hours a very small amount of the same toxin is injected into the blood stream of the animal. Four hours later a red area the size of a quarter appears at the place where the toxin was first injected.

The great hope for the work lies in the fact that the value of a curative serum is found to be gauged by its ability to prevent the development of this red spot. By the use of the "Shwartzman Reaction" it is hoped that a new serum treatment for typhoid fever, for dysentery, for meningitis, and for many other diseases may be found.—*Boston Transcript.*

INTELLIGENCE OF DRUG ADDICTS

Commenting upon the question which is sometimes raised as to whether drug addicts are worth reclaiming, Surgeon General Hugh S. Cumming of the United States Public Health Service recently stated that drug addict prisoners who have committed offenses against the United States and who are no longer taking drugs, show, according to preliminary studies of the Public Health Service, a greater proportion of above average intelligence than is observed among non-addict prisoners.

Among the drug addicts studied thirty in every one hundred were above the average in intelligence, whereas only eighteen in every one hundred prisoners not addicted to the use of drugs were above the average in intelligence. On the other hand, seventeen in every one hundred drug addict prisoners were considered to be normal but of dull intelligence, whereas one in every ten addict prisoners were mentally defective and one in every six among the non-addict prisoners were mentally defective.—*United States Public Health Service.*

NEW HAMPSHIRE SURGICAL CLUB

THE Thirty-third Semi-Annual Meeting of the New Hampshire Surgical Club was held at Notre Dame Hospital in Manchester on April 28, 1931 and from every viewpoint was a very successful gathering.

The centre of attraction was Wayne Babcock, M.D. of Philadelphia, who operated very skilfully at the morning clinic and entertained the meeting in the afternoon with a paper entitled "The Operative Treatment of the More Difficult Types of Hernia." This was supplemented by lantern slides and proved highly interesting as well as instructive.

Great credit is due to the Staff of the Notre Dame Hospital for the masterly manner of handling the clinic and arrangements connected therewith, and to the Sisters of the Order for their coöperation.

A paper by John P. Bowler, M.D. and John F. Gile, M.D. of Hanover, N. H., was also read, which appears below.

URETERAL TRANSPLANTATION FOR INTRACTABLE VESICOVAGINAL FISTULA

BY JOHN P. BOWLER, M.D.,* AND JOHN F. GILE, M.D.*

THE successful surgical treatment of vesicovaginal fistula began with the work of Sims[1] and was carried on by his pupil Emmett[1], who continued and even surpassed the technique which Sims had developed.

Their large percentage of cures, unusual up to that time, were arrived at chiefly by improved exposure by means of Sims' position and speculum. If exposure can be obtained the cure of vesicovaginal fistula always seems assured, and if one's experience is limited to the reading of the various textbooks and diagrams the methods of procedure appear very simple. There is no intricate anatomy complicating the procedure, which consists of a separation of the vaginal and bladder layers and separate suturing, taking care that the sutures do not penetrate the bladder mucosa. There seems to be no advantage in dissecting widely the lips of the fistula unless there is certain hope that the layers can be again approximated. But the deformity of the vaginal wall by contracted fibrous tissue, the location of the fistula relative to bladder trigone and ureters, and the alteration within the pelvis by previous surgery tend to make the average case less simple.

Trendelenburg[2], in 1890, was apparently the first to use a method different from that which had been developed up to that time. His radical departure consisted in the adoption of the transvesical route. Sears[3] in 1929 reported forty-eight cases from the existing literature and added two cases of his own with an 80% cure by this method. He states that the indication for this procedure is a long narrow vagina with a high fistula combined with fixation or absence of the uterus.

N. Mahfouz Bey[4] of Cairo, some years ago reported 270 cases and in 1930 added 30 more cases on which he had operated for vesicovaginal fistula with an 87% cure. With modern obstetrical practice, lists of this length should be more and more rare. It has been generally conceded that the prolonged pressure of the head of the baby against the bladder has been the chief cause for vesicovaginal fistula, and with modern obstetrical practice, the use of forceps, and other methods of delivery this etiology will be largely eliminated. On the other hand, the addition to our methods of treatment such as the cautery, radium, and more radical pelvic surgery have contributed additional cases which probably will offset the decrease resulting from improved obstetrics.

We wish to consider in this paper a vesicovaginal fistula which has failed to respond to repeated local surgical procedures, the unsuccessfully operated, or inoperable vesicovaginal fistula.

Mrs. M. B., Case No. 36350, age 33, admitted to the Mary Hitchcock Memorial Hospital on October 19, 1930, with the complaint of urinary leakage and left abdominal and flank pain. Family history negative. Married twelve years, husband and two children, ages 11 and 9, living and well; one child died with scarlet fever. Patient had been in good health until just preceding June 1923, seven years ago, when she had an appendectomy and suspension of the uterus. Because of a continued metrorrhagia a supracervical hysterectomy was done in 1924, one year later. Because of continued cervical bleeding removal of the cervix was performed in January 1930, two weeks after which urinary leakage began and has continued to date. Unsuccessful attempts at closure of an extensive vesicovaginal fistula were made in May and again in June, five months ago. During this period there has been an increasing amount of intermittent pain in the left lower abdomen and flank, and during the past few weeks morphine has been required for relief.

Physical examination shows a rather thin, white female in a state of marked mental depression and complaining of pain in the left abdomen and flank. The teeth are septic. There are increased breath sounds present over the right upper chest posteriorly. The abdomen shows a midline suprapubic scar; tenderness 2 over the left lower quadrant extending upwards to the flank and to the left costovertebral angle. Vaginal examination shows an irritation 2 of the perineum; shortening and scarring 3 of the anterior vaginal wall, and to the left of the

*Bowler—Member of Surgical Staff, Mary Hitchcock Memorial Hospital. Gile—Member Surgical Staff, Mary Hitchcock Memorial Hospital, Hanover, N. H. For records and addresses of authors see "This Week's Issue", page 1225.

center of the upper third is a pouting, red, fistulous opening, admitting a finger; and an eversion of the bladder mucosa.

Two days after admission cystoscopic examination was done with the following report: "Bladder floor edematous, fistulous opening is to the right of trigone posterior to the right ureteral orifice. Cystoscope can be introduced into the bladder

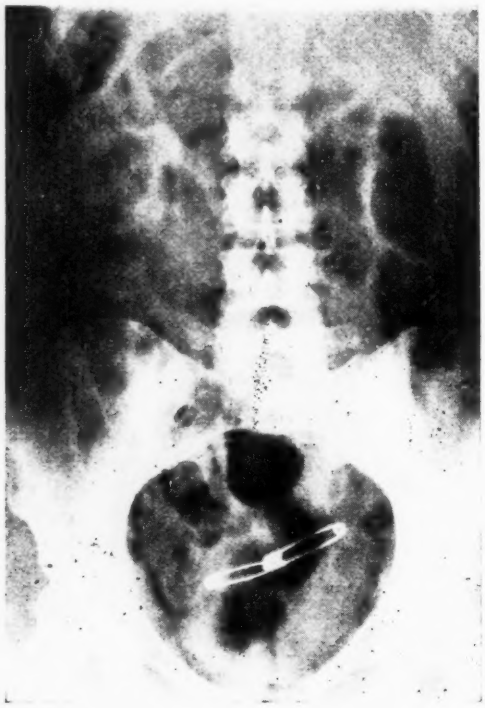

FIGURE 1.

opening. Left orifice not found. Right orifice normal, right ureter catheterized, normal differential function, normal pyelogram."

On a repeated cystoscopic examination, one week later, the left ureteral orifice was again not seen and no dye returned aside from right ureteral catheter.

To determine the question of a functioning left kidney an intravenous injection of uroselectan was done on the next day with the following result (Fig. 1): "The kidney outlines are well visualized and appear normal. Film taken fifteen minutes after injection of dye shows normal pelves on both sides. Ureters are visible down to the upper border of the sacrum and appear normal; both ureters are indistinct below this point."

Such a case presents as a problem more than complete urinary incontinence and vaginal and perineal irritation. In proportion to the delicacy of nervous make-up there is presented an extreme depression and lack of faith as a result of multiple unsuccessful experiences, which raises the question as to how many operations a given patient should be subjected when there is a failure of plastic procedures. It seemed important in this case that some sphincteric action be soon applied to effect urinary control. In addition to the incontinence of urine, a complicating factor in this case is a left renal obstruction probably resulting from involvement of the lower left ureter in the fibrotic changes accompanying the fistula. The orifice of this ureter could not be located, nor was dye recovered as limited to this kidney in its origin. But the intravenous pyelogram provides some evidence as to its function. In considering transplantation of the ureters it is necessary that this kidney be preserved, not removed, for its present and potential future function must be utilized.

The only possibility of restoring sphincter control is the diversion of urine to the rectum, which can be accomplished by direct transplantation of the ureters to the lower bowel or by conversion of the vesicovaginal fistula into a vesicovaginorectal fistula. Of these we would prefer the former.

The surgical status of direct transplantation of the ureters into the sigmoid and rectum has been well established by the work of Coffey[5] and C. H. Mayo[6]. Modifications have been added by Dixon[7] and others. The long time results are constantly improving and are satisfactory, producing as they do the minimum alteration of natural and normal processes. We would prefer it to the cloacal procedure advocated by Peterson[8] in 1917, that of converting the vesicovaginal fistula into a vesicovaginorectal fistula with the closing of the vagina. The latter provides various diverticulum-like divisions for the formation of stones, prohibits copulation, necessitates menstrual blood to pass by rectum, and subjects both urinary and genital tracts to the contamination of the cloacal contents.

As balancing these disadvantages of this cloacal conversion of the vagina are offered the preservation of the action of the ureteral orifice sphincter as a barrier against ascending renal infection and the lowered operative mortality of an extraperitoneal procedure. These would seem hardly to balance the permanent mental state left with the woman to whom a vaginal obliteration was recommended for the avoidance of a not unusual surgical risk. And it is yet to be proven that the danger of ascending renal infection is greater in either procedure. It should be noted that Peterson[9] in 1928, reporting further cases, has abandoned the colpodeisis in favor of ureteral transplantation. But in our case the presence of signs of an obstructed left kidney left no choice as no relief of the obstructed ureter would have been offered by the cloacal operation.

An initial hesitancy to adopt such radical procedures was explained to the patient and there were undertaken by us two attempts to accomplish a plastic closure, both of which were followed by recurrence of leakage on the eleventh day. It had been necessary, because of a distinct aversion on the part of the patient, to avoid ether anesthesia in any combination. On November 13, at the time that our second local attack was to have been made on the fistula, spinal anesthesia was again to be used,

but not produced because we experienced our first breaking of a spinal anesthesia needle, necessitating an incision over the spinous processes, retraction of the spinal muscles, and recovery of the distal half of the needle under gas-ether anesthesia. The second attack was then done on the twenty-fifth with the failure noted above. Less superstitious individuals than we could then have arrived at a definite plan of action, but the patient still desired that which had been proposed originally as the ultimate procedure if others failed. To both the patient, who had undergone multiple unsuccessful procedures for a year, and to us, with our unsuccessful experiences for two months, ureteral transplantation seemed acceptable.

On December 17 transplantation of the right ureter was done through a low oblique incision in the right lower abdomen under intravenous amytal and gas-oxygen anesthesia. Because of extensive pelvic adhesions low isolation of the ureter was accomplished with some difficulty, the distal end ligated and the proximal end freed for three inches, and the split peritoneal edges resutured over the old ureteral bed. As low as possible in the upper rectum, closed with an intestinal clamp, the medial tinea was split for three inches and dissected back from the submucosa to form an intramural trough for implantation of the ureter. The edge of the ureter was pierced with fine catgut, tied, and the free end inserted into the lumen for a distance of one and a half inches to preserve the lumen of the ureter at the point of severance. A puncture wound was then made through the mucosa of the bowel, at the lower end of the serosa incision, and through this opening the end of the ureter was introduced into the bowel lumen and drawn downward one-half inch lower inside the rectum by needle and suture being brought out through the bowel at that point and tied. Closure of the longitudinal muscle coat over the ureter by means of interrupted sutures, an occasional one taking in the periureteral tissue, completed the implantation. The bowel was then fixed to the right parietal peritoneum for fixation of the bowel and to approximate the suture line of the bowel against a peritoneal surface. (Technique demonstrated by means of lantern slides.)

The right ureter is routinely transplanted as the primary procedure in order to utilize the mobility of the rectum and sigmoid for fixation to the right side before transplantation of the left ureter which can be done at the lowest, most convenient portion of the sigmoid. The recovery from this first stage was entirely uneventful, and the procedure was repeated with the left ureter on January 8 under light gas anesthesia preceded by amytal given orally over twelve hours before operation. The left ureter was dilated 2 through the lower third. Transplantation of this ureter was followed by no unusual reactions.

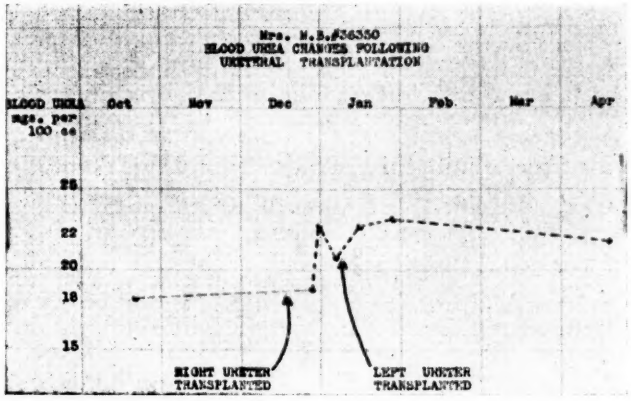

FIGURE 2. This patient was dismissed from the hospital on January 25, 1931, in good general condition and in a much changed mental state. On last report, ten days ago, she had gained ten pounds in weight, was doing all her own housework, and the pain in the left flank has been decreasing steadily.

The blood urea observations in this case were quite typical and are of some interest. As a result of the return of the urine to the colon where a certain degree of reabsorption may occur, the blood urea level in these cases is usually slightly elevated. This may be mistakenly interpreted as indicative of a renal impairment. The blood urea curve relative to ureteral transplantation may be best shown by the curve depicted above.

REFERENCES

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2 Trendelenburg: Quoted by Sears, Practice of Surgery by Lewis.
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5 Coffey, R. C.: J. A. M. A. 1911, page 397; N. W. Med. October 1930, page 443.
6 Mayo, C. H.: J. A. M. A. 1917, LXIX, 2079.
7 Dixon, C. F.: Surg. Clin. North Am. February 1930.
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9 Peterson, R.: Tr. Am. Gyne. Soc. 1927, 52:5-15, 1928.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PROCEEDINGS OF THE ONE HUNDRED AND FORTIETH ANNUAL MEETING

Houses of Delegates

Meetings Held at Manchester, N. H., May 18, 19*, and 20*, 1931

MEETING called to order by the Speaker, Dr. Samuel T. Ladd, at 7.30 P. M., May 18, 1931.

On roll call a quorum was declared present.

On motion, duly seconded it was

Voted: that the reading of the minutes of the last meeting be omitted.

Appointment of Committees by the Speaker:—

Credentials:—Dr. A. C. Johnston, Coos County; Dr. Charles C. Smith, Carroll County.

Memorials and Communications:—Dr. F. P. Lord, Grafton County; Dr. Henry C. Sanders, Jr., Sullivan County; Dr. Warren P. Grimes, Hillsborough County.

Officers' Reports:—Dr. C. L. Smart, Belknap County; Dr. Frank Dinsmoor, Cheshire County; Dr. D. G. Smith, Hillsborough County.

The President, Dr. O. H. Hubbard, appointed Dr. Fred E. Clow to act as delegate in place of Dr. Charles C. Smith of Carroll County; also Dr. Everett Stone was appointed to fill the vacancy caused by the death of Dr. Howard A. Hanaford.

The Credential Committee reported all credentials received with one exception.

On motion, duly seconded, it was *Voted* that this report be accepted.

Reports of Officers.

Dr. D. E. Sullivan, Secretary-Treasurer.

To the Members of the House of Delegates of the New Hampshire Medical Society: The following report of the Secretary-Treasurer for 1930 is respectfully submitted:—

MEMBERSHIP 1930

Hillsborough County	137
Merrimack County	64
Rockingham County	51
Grafton County	49
Coos County	39
Strafford County	31
Cheshire County	30
Belknap County	29
Sullivan County	18
Carroll County	11
Not in County Society	12
Total	471
Affiliate Members	6
Honorary Members	16
Total	493

*Meetings of May 19 and 20 will appear in the issue of July 2.

FIFTY YEARS IN PRACTICE

William Herbert Nute, Exeter. Bowdoin 1881.
Charles F. Flanders, Manchester. Dartmouth 1881.
Charles A. Weaver, Manchester. Vermont University 1881.
Joseph J. Cobb, Berlin. Bowdoin 1881.
George H. Morrison, Whitefield, Pa. 9— 1881.

It is expected that these members will be present at this meeting to receive the congratulations of the Society.

FIFTY YEARS' MEMBERSHIP

Edward Osgood Otis, Exeter.

The gold medal will be presented to Dr. Otis, Wednesday afternoon.

For some unknown reason, the other eligible declined the honor.

FINANCIAL STATEMENT

Receipts

Balance, January 1, 1930	$ 25.03
Hillsborough County dues	516.00
Merrimack County dues	232.00
Grafton County dues	116.00
Rockingham County dues	204.00
Cheshire County dues	128.00
Coos County dues	164.00
Belknap County dues	104.00
Sullivan County dues	72.00
Carroll County dues	40.00
Strafford County dues	124.00
Members not in County Societies	56.00
Exhibitors	414.00
Banquet tickets	424.00
Trustees	600.00
	$3,219.03

Expenditures

Postage		$ 39.36
Appropriation, Cancer Committee		25.00
Bridge & Byron, letterheads		6.50
Sentinel Printing Co., Prize Essay Circular		10.32
Ira Prouty, Trustee, Expense Prize Essay		8.75
J. J. Cobb, Expense September Meeting, Medical Defense Com.		14.55
W. P. Bowers, Secretary, Pro Rata Expense N. E. Medical Council, Boston, Feb. 19		55.31
W. P. Bowers, Secretary, Pro Rata Expense N. E. Medical Council		60.35
Dr. John F. Holmes, Salary, expenses to Boston, telephones, postage, etc. (publicity)		51.90
Dr. T. W. Luce, Expenses Medical Defense Committee Oct. 9		4.18
Dr. D. E. Sullivan, Salary to July 1, 1929		400.00
Eagle & Phenix Company, Expense Secretary's Conference		13.50
N. E. Journal of Medicine		
Reprints Dr. Schmitz paper	$ 31.87	
Quarterly subscriptions and postage	140.60	
2 copies	.60	
Reprints Dr. Lewis paper	19.65	

Quarterly bill and postage	$ 140.20	
550 copies Transactions	336.14	
Quarterly bill and postage	139.47	
Quarterly bill and postage	136.50	
1/2 expenses Dr. Allen's paper	6.00	
		$951.03
Bridge & Byron—Charter, Constitution and By-Laws		81.00
Expenses, Meeting, Banquet, Exhibits		
Robbins Co., gold medals	36.14	
The Lilley Co., badges and postage	27.31	
Evans Printing Co., exhibits	27.29	
Bridge & Byron, programs	32.00	
Delegates Certificates	4.50	
H. H. Amsden, expense exhibits	9.63	
Concord Wiring Supply Company, expense exhibits	34.88	
C. W. Barnard, expense exhibits	2.50	
H. G. Forrest, plans for booths	9.25	
Frederick M. Allen, Guest—State meeting	35.00	
Harold E. B. Speight, banquet speaker	35.00	
Walter's Taxi, Prof. Speight to Hanover	30.00	
Nardini, lunch	60.00	
H. W. Rainie, orchestra	60.00	
Eagle & Phenix Hotel, banquet	479.85	
Dunlap Photo Co., photographs	3.00	
D. McLeod, Flowers	41.20	
Grace P. Amsden, Woman's Auxiliary entertainment	88.00	
Prescott Sign Co., annual meeting	2.00	
Wm. T. Frary, publicity	50.00	
University Film Foundation	6.75	
E. R. Hodgdon, film operator	5.00	
Evans Printing Co., banquet tickets	5.25	
Kings Garage, bus service	5.50	
C. A. Williams, rent hall and telephone calls	151.45	
Epiphany Chapter, rent	25.00	
St. Paul's School, rent Community House	8.00	
Dr. C. H. Parsons, expenses hall janitor State Meeting	5.00	
Regina Sullivan, clerk at meeting	10.00	
Ann Hill, clerk at meeting	10.00	
H. A. Edgecomb, Boston, stenographer	206.24	
J. H. Forster, multigraphing postal cards	17.29	
W. M. Haggett, stenographer (delegates)	5.00	
Esther LeFleur, mimeographing	3.96	
		1,531.99
		$3,253.74

For some years it has been evident that a stable increase of receipts was necessary to maintain a healthy financial ratio with the regularly authorized expenditures. The present annual assessment of four dollars is not consistent with the diminished purchasing power of the dollar and the increased cost of necessities. As a progressive organization, we cannot be satisfied with the old order when newer acceptances, though involving additional expense, demand recognition and adoption. Very few, if any State Medical Societies, have such a small annual assessment; many county and local societies throughout the States require annual dues far in excess of our State dues. It is not a safe business policy to rely on any extraneous, fluctuating source of revenue such as the commercial exhibits at our annual meetings, to pay a deficit in our ordinary expenses incident to the maintenance of our society in keeping with the times.

It is recommended that at this session Chapter X, Section 1 of the by-laws be amended to increase the annual dues.

As Chairman of the Committee on Medical Defense it should be recorded that, while that Committee is not directed to make an annual report to this House, it does seem necessary to call the attention of every member of the Society to the need of taking all reasonable precautions against the possibility of a threatened lawsuit to himself or to his brother member. With the adoption of Medical Defense there has not been developed as yet all of the desirable and expected beneficial results and the number of suits or threatened suits for alleged malpractice are too numerous. This condition can be remedied to a very large degree by a proper observance of the Code of Ethics and the requirements of the Art and Practice of Medicine of the present day.

The president, Dr. Osmon H. Hubbard, made the following appointments: Dr. David W. Parker, Manchester, member of the New England Medical Council for three years to succeed himself; Dr. Joseph J. Cobb, Berlin, member of Committee on Medical Education and Hospitals for three years, to succeed himself; Drs. John F. Gile, Hanover, Frederic P. Lord, Hanover, and Robert H. Brooks, Claremont, a committee on Clinical Meetings; Dr. Robert J. Graves, Concord, a member of the Committee on Medical Education and Hospitals, to fill the unexpired term of Dr. Fred E. Clow, resigned; Dr. Richard W. Robinson, Laconia, member of the Committee on Scientific Work, to fill the vacancy due to the resignation of Dr. H. A. Des Brisay, now of Vancouver, B. C.; Dr. William H. Leith, Lancaster, Anniversary Chairman.

The Woman's Auxiliary has manifested the benefits of its organization during its existence and should receive a more cordial and enthusiastic reception from some of our members. Too many are indifferent, even hostile to this association of women, our wives, whose sole object is to assist our society in such ways as we direct. With our Councilors, delegated the Advisory Board to the Auxiliary, there should follow an increase in their activities and a close union.

With the increase of duties of the office of recent years in editing material for the *N. E. Journal of Medicine* and the Transactions, assisting the Committee in Public Relations, Public Policy and Legislation, and the Committee on Medical Defense in their many problems, and with the usual routine work in conjunction with the County Secretaries and our standing committees, have come additional opportunities for service and contacts and at this time the Secretary wishes to acknowledge the many courteous considerations shown him and the debt of gratitude due them for their fine spirit of coöperation and forbearance, without which such successes attained were not probable.

D. E. Sullivan,
Secretary-Treasurer.

On motion, duly seconded, it was *Voted* that the reports of the Secretary-Treasurer be referred to the Committee of Officers' Reports and that the recommendation of the amendment of Chapter X Section 1 of the By-Laws be referred to the Committee on Constitution and By-Laws.

Reports of Standing and Special Committees.

Publication.

The past year has recorded anew the satisfactory relations of your committee with the *New England*

Journal of Medicine. The material offered the *Journal* for publication in its first edition of each month is edited promptly and printed in an attractive style. The space allotted to us embraces the twelve months of the year and thought has to be given to a well-balanced production in apportioning our manuscript. This consideration has its effects in the apparent delay of the bound transactions each year, but that alone is not the only reason; regularly has it happened that inability to obtain the author's original manuscript or his corrected proof has been the explanation of failure of more prompt appearance of our annual volume.

The expense for subscriptions including reprints for papers of guests was $614.89; the cost of publishing and binding the transactions was $336.14 making a total of $951.03.

Once more we urge the members to send to us items of interest for publication in the *Journal.*

D. E. Sullivan, *Chairman,*
Henry H. Amsden,
Raymond H. Marcotte.

Report of Delegate to 1930 session of A. M. A.

Your delegate attended the Eighty-first annual session of the American Medical Association held at Detroit, Michigan, June 23-27, and participated in all of the meetings of the House of Delegates.

A large amount of routine business with the reading of some lengthy reports of the various officers, bureaus, councils and commissions consumed a number of hours.

The president-elect, William Gerry Morgan, the first New Hampshire native to be elevated to this high office, gave a most practical address on the relation of the physicians to the hospital stressing the fact that the physician is no more obligated to provide for the care of the indigent sick than his fellow citizens and should protect himself from exploitation.

The communistic tendencies of Congress to perpetuate the Sheppard Towner Maternity and Infancy legislation and the almost incredible extension of free hospital care with other contingent expenses to war veterans and their families regardless of their financial abilities or the source, time or nature of their disabilities, were roundly condemned by appropriate resolutions.

Those duties belong to the several states and not to the federal government.

One popular event of the proceedings was the presentation to former presidents of the association of a medal commemorative of their respective terms of service.

Secretary West recommended a more active and aggressive program on the part of component medical societies, stressing the necessity for unified action on the part of the medical profession as being essential in maintaining leadership in all questions pertaining to health matters.

Philadelphia was chosen for the next annual session and the time, since fixed by the trustees, June 8-12. Dr. Edward Starr Judd of the Mayo Clinic was elected President-elect.

D. E. Sullivan,
Delegate American Medical Association.

On motion duly seconded it was *Voted* that these reports be referred to the Committee on Officers' Reports.

Report of Committee on Scientific Work.

The committees of the different medical and surgical societies throughout the country, ever eager to meet the demands of the progressive and changeable times, are put to the test of adopting radical innovations or adhering to the usual procedure with additions of such things as experience has proven acceptable to other organizations.

For the first time are offered motion pictures with sound and original lantern slides to illustrate an address by an eminent physician from Vienna, temporarily in the United States. Both of these features will be presented Tuesday evening in the general assembly room and should prove unusually interesting.

As heretofore, well-known specialists from neighboring states will make valuable contributions to the program in addition to those of our own members and a timely group of subjects will be offered for your consideration and discussion.

We solicit suggestions and voluntary papers for next year.

D. E. Sullivan, *Chairman,*
Richard W. Robinson,
Frederick P. Scribner.

On motion, duly seconded, *Voted* that this report be referred to Committee on Officers' Reports.

Report of Committee on Mental and Social Hygiene.

In attempting to write a report for the Mental and Social Hygiene Committee of this Society I am in some doubt as to what should be excluded, as mental health extends to all phases and activities of human life.

At the present time New Hampshire has a large burden of mental ill health, mental insufficiency and aberration from the normal. During the last twelve months there were 213 male and 193 female patients admitted at the State Hospital for the Insane, a total of 406. There were 328 discharges. The approximate number admitted annually for mental ill health to our State Hospital is 400; the approximate number which annually leaves that Hospital is 300. There is an annual residual accumulation of 30 to 40 patients at the State Hospital which, multiplied by years, calls for increased construction and additional outlay. The amount appropriated for the maintenance of this institution for each of the ensuing two years is $662,714.

Laconia State School has a bed capacity of 550. It usually carries on the list of those paroled under supervision and placed at gainful occupation about 75 boys and girls. The amount appropriated for the maintenance of this institution for each of the ensuing two years is $190,000.

There is at the office of the State Board of Health in accordance with law a list containing the names of 400 persons; this list is made up for the most part of mentally handicapped boys and girls reported by the superintendents of public schools.

Modified instruction in the public schools of New Hampshire under the name of Opportunity Classes is affording specialized instruction to 400 boys and girls. Experience in other states indicates the need of developing specialized instruction in the public schools for all children who do not absolutely need institution care.

We do not assume that all the commitments to the Industrial School or to the State's Prison are the result of mental ill health; unquestionably some of them are.

There is great need of a larger number of qualified mental hygienists and competent mental examiners in the State. The sub-committee on the Mentally Handicapped in the Hoover Child Health Conference recommended that each year all the children in the public schools who had special educational or behavior difficulties should be given a complete examination by a competent mental examiner, and the names and addresses of those found to be

definitely feeble-minded should be kept in a central bureau and be available only to authorized state officials. This would call for a few competent examiners but if this census could be properly taken in a few years the number of feeble-minded persons in the State would be more definitely known.

During the last year mental examinations have been made by Ada L. Allport at the Coit House, Concord. Mental clinics have been held monthly at the N. H. Industrial School and mental testing has been done by Miss Elizabeth E. Herrick of Beverly, Mass. In January, 1931 a community mental hygiene clinic was opened in the District Nursing Association in Manchester and has since held regular clinics, the staff consisting of Dr. C. H. Dolloff, Concord; Dr. John M. Murray of Winchester, Mass.; Dr. Naomi Ekdahl of the State University, and Betsy Mitchell, Psychiatric Social Worker. During the winter 26 community lectures have been arranged by this staff. These lectures have been informative as to cause and effect in mental ill health. Twenty-six additional lectures have been given to the public health and school nurses of Manchester. Dr. C. A. Bonner of Danvers State Hospital gave one lecture to the local medical society at the Notre Dame Hospital on the "Early Symptoms of Mental Mal-adjustment." The Parent-Teachers Association in its several meetings has handled many subjects of a mental hygiene nature. The N. H. State Hospital has held clinics at Manchester, Nashua, Dover and Portsmouth. Laconia State School has held clinics at the Community Council in Nashua. Children have been sent for mental examination freely and without charge to Laconia State School. Public school children have received mental examinations by the Social Worker for Laconia State School on request, when time has permitted. Lectures and clinical demonstrations have been given at the N. H. State Hospital and Laconia State School to classes in psychology and sociology from the University of New Hampshire, Dartmouth College, Plymouth Normal School and to preparatory schools.

Our County Farms last year had a total of 2094 inmates at a total expense of $360,574.13.

There are 17 orphanages in the State, well conducted and supervised. Those not intimately acquainted with the statistics relating to our orphanages are likely to be misled as some of the children being cared for in this way are not orphans but are supported in whole or in part by one or both parents.

The legislature of 1929 passed a sterilizing law which applies only to patients in state and county institutions, capable of transmitting hereditary defect or disease. From such information as I have been able to obtain, 59 sterilizing operations have been performed under this law in the county and state institutions.

Your Committee feels that there is a growing public interest in mental hygiene. The indications are that with assistance obtainable from outside the State and the literature available to an intelligent reading public the social workers, public health nurses and educators are soon going to be better informed in this line of preventive medicine. It is now generally recognized that there are those especially qualified by study and experience who are able to be very helpful to educators and others having responsibility for large numbers of children. Instances are not uncommon in which careful investigation and good advice have brought about mental adjustments which have avoided institution commitment.

There is a growing sentiment and demand for mental hygiene work and information on mental problems which should ultimately lead to the formation of a mental hygiene association with recognized centers for advice and distribution of information on mental ill health, mental defect and mental hygiene in general. Such a movement would lead to a more modern public conception of mental ill health, its prevention and treatment, and in time supplant some of the erroneous beliefs now generally held through lack of better information and understanding of the subject.

BENJAMIN W. BAKER, *Chairman*,
CHARLES H. DOLLOFF,
LESLIE E. MCKINLAY.

On motion duly seconded, *Voted* that this report be referred to the Committee on Officers' Reports.

Upon invitation, Dr. Leroy E. Parkins and Dr. Frank H. Ober of Boston, Mass., presented Tentative Plans for Postgraduate Extension Teaching Service for the State of New Hampshire with the coöperation of the Harvard Medical School. Discussion followed and upon motion of Dr. Scribner, duly seconded, it was *Voted* that the subject be referred to the Committee on Medical Education and reported on Wednesday, May 20.

Reports of Councilors.

SULLIVAN COUNTY

The Sullivan County Medical Society met twice during the past year. The summer meeting was held at the Winston Hotel in Newport and was well attended by members and invited guests. We were exceptionally honored at this meeting by having with us the president of the American Medical Association and also the president of the New Hampshire Medical Society. We especially appreciate the consideration shown us by our National president. Although this meeting came at a very busy time for Dr. Morgan he favored us by his presence even though he was obliged to fly from Washington to Newport in order to keep the appointment.

The winter meeting was held at The Claremont General Hospital, taking the form of a symposium on obstetrics led by Dr. Stone of Newport, and the interest shown in the discussion of the paper proved that the Sullivan County Medical Society is very much alive.

Our society this year suffered a deep loss in the death of Howard A. Hanaford of Newport.

EMERY M. FITCH,
Councilor.

STRAFFORD COUNTY

The one hundred and twenty-fifth annual meeting of the Strafford County Medical Society was held at 11 A. M. October 23, 1930 at Gray Tower Motor Inn, Rochester, and was largely attended.

The following interesting program was presented:

The bedside recognition of cardiac irregularities and their clinical significance. Samuel A. Levine, M.D., Boston, Mass.

Discussion of fractures with demonstration of splints. Ezra A. Jones, M.D., Manchester, N. H.

The only other Medical Society in the county, the Dover Medical Society, has opened an associate membership to all the doctors in the surrounding localities and has held ten well attended meetings during the year.

H. O. CHESLEY,
Councilor.

GRAFTON COUNTY

The Grafton County Medical Society has been quite alive the past year. The annual meeting was held in October at the Grafton County Farm, where the members were the guests of the County Commissioners.

Every courtesy was extended the members, including a dinner and an inspection of the new buildings. There was a very full attendance and a good program.

The Spring meeting was held in April at Glencliffe where the members were guests of the Sanitarium staff, who provided a fine program and entertained the members at dinner. Following the dinner an opportunity was given for a full inspection of the whole plant.

A. T. DOWNING,
Councilor.

ROCKINGHAM COUNTY

The Rockingham County Medical Society held two meetings during the past year.

The annual meeting October 13, 1931 at Derry:

The President, Dr. L. R. Hazzard, was unavoidably absent, adding to his well-known store of learning and ability, but Ex-President Dr. Fred Fernald filled the position graciously.

Ex-President Dr. Henry O. Smith of Hudson and Secretary D. E. Sullivan were present and spoke wisely.

The chief paper, by Dr. Walter R. Sanders, now president of the society, contained many happy and interesting suggestions.

The second meeting, October 2, 1931, at Portsmouth:

The morning, by invitation, was spent at the Naval Hospital.

Lieutenant-Commander W. F. Funk, Medical, J. B. Logue, Surgical, and C. D. Allen, Nose and Throat, devoted their entire time to us in very interesting and helpful clinics.

Very generously they answered our many inquiries and gave valuable information.

A bountiful lunch was served at noon.

At 2 P. M. at the Portsmouth Hospital—Demonstration of spinal anesthesia with x-ray films, Dr. L. R. Hazzard.

Clinic and general discussions followed.

All in all it was a splendid affair.

The Ladies' Auxiliary Society was entertained by Miss Luce at the home of Dr. Thomas W. Luce.

A. W. MITCHELL,
Councilor.

CHESHIRE COUNTY

The Cheshire County Medical Society held two meetings during the year 1930. Both meetings were held at the Elliot Community Hospital, Keene. They were well attended and the papers read at these meetings were well received and fully discussed by the members present.

There has been one death during the past year: Dr. Walton H. Aldrich, Keene.

The society accepted with pleasure the invitation of the citizens of Troy, New Hampshire, to join in celebrating Dr. Melvin T. Stone's fiftieth anniversary of practice of medicine in that town, and the members responded in good number. I am sure all the members of the New Hampshire State Society will hear with deep feelings of regret of the death of his wife and will join us in offering the doctor our most sincere sympathy in his great loss.

A. A. PRATTE,
Councilor.

HILLSBOROUGH COUNTY

Since the last annual meeting of the New Hampshire Medical Society, the Hillsborough County Medical Society has held two meetings.

The fall meeting was held at the Country Club at Nashua and was largely attended. Dr. Murphy read a paper on diets which opened up much discussion and was of extreme interest to all. There was also a moving picture of surgery of the extremities.

At this time there was organized a committee on public policy and legislation to work with the State Committee. Also the meeting was honored by the presence of President Hubbard and Secretary Sullivan of the State Society.

The spring conference held at the Country Club at Manchester was one of the best attended meetings of recent date.

The Woman's Auxiliary also met and a fine dinner was served. Dr. Joseph Pratt read a paper on Psychalgia, and Dr. Wyman Whittemore one on The Surgical Aspects of Chest Conditions.

We have lost two members by death, Dr. Emdon Fritz and Dr. Walter Minigan, both of Manchester. We have two new members and two have removed to other places.

The City Societies of Manchester and Nashua have had their several meetings this last winter. The Hillsborough County Medical Society has 128 active members.

CLARENCE O. COBURN,
Councilor.

CARROLL COUNTY

The coming of young men to our county has relieved the shortage of physicians. Not only is the public being well served, but these young enthusiastic practitioners are meeting with unusual success, in every way. There is but one man in the county who is not affiliated with organized medicine.

Two successful meetings of the society have been held this year; one was purely experimental but proved to be of outstanding value. More meetings for the showing of medical motion pictures will be held.

The county society has coöperated in conducting a prenatal clinic at the county hospital. It is on record as being opposed to the holding of free clinics where the attending physicians are not paid, and its demand has been met before any conferences were held. It is felt that young men just beginning in medicine, with new responsibilities should be upheld in their desire and their attempts to place on society the burden of care for the poor of our communities. This contention is upheld on every occasion.

We are trying to make our local hospitals not only institutions for care of the ill and injured, but educational centers for the staff. We hold our medical meetings in these surroundings; our libraries are concentrated there. Our ambition is a short postgraduate conference for all the physicians of the surrounding territory, using a hospital as the teaching center. At one institution a generous appropriation for journals and new books is made each year.

FRED E. CLOW,
Councilor.

On motion, duly seconded, *Voted* that the Reports of the Councilors be referred to Committee on Officers' Reports.

Report of Committee on Control of Cancer.

Your committee can report this year a definite result of the educational work that has been done in the state during the past fifteen years. The legislature has granted an appropriation of money and directed the appointment of a commission for the study of cancer and for the treatment of patients suffering from this disease. We dare hope that this is partly the fruits of our labor. We feel that our efforts should not slacken but that as an organized profession we should go on. Our task is even greater now that we have committed our state to a certain line of action and thought. We are concerned with the education not only of lay people, but the members of our own organization to

the end that our patients may receive the best we know of cancer therapy.

Quoting from a recent report on the Teaching of Radiology, we wish to stress:

> Radiotherapeutic and surgical treatment of malignant tumors are certainly not the personal task of general practitioners. But it is these practitioners who are charged with hunting out cancers in the beginning, then with directing their patients without delay to specially competent doctors or to the institution able to give them the most chances for getting well. After treatment they have an important rôle of surveillance, and often of final care. Thus it would be of the greatest social advantage for doctors who are not specialists or family doctors, to be able to get a short and practical course which should cover: how to make an early diagnosis of cancer, the present status of choice between the methods of treatment, the principal results achieved by those methods, and the general care to be given to the cancerous patient.
>
> It is not an exaggeration to say that the cure or the death of many cancer patients depends above all on the doctors to whom they go in the first place. In the fight against cancer we do not yet know what to do by prophylaxis, we can only do something by therapeutics. But the curative therapeutics of cancer, although outside the personal powers of the family doctor, nevertheless will often be what his diagnosis and advice will have permitted. The most important thing we can do for the curing of the greatest possible number of cancer sufferers is then to instruct the doctors. The great value of postgraduate teaching of doctors is so evident that there is no need to emphasize it.

A few talks on cancer have been given this year. A large amount of printed matter has been distributed. Many inquiries addressed to the New York office of the American Society for the Control of Cancer, from people in our state, have received immediate attention. The number of these inquiries has increased enormously in the past five years.

The legislative hearing before the House Committee on Appropriations was attended by the chairman. Other members of the committee took active part in formulating final legislation.

Of our appropriation we have still a balance of $5.46.

We recommend, if the committee is continued:

1. Close coöperation with the state cancer commission.
2. Continuance of educational activities.
3. An appropriation of twenty-five dollars for the coming year.

FRED E. CLOW, *Chairman*,
GEORGE C. WILKINS,
HOWARD N. KINGSFORD.

On motion, duly seconded it was *Voted* that this report be referred to the Committee on Officers' Reports.

Report of Committee on Lay Health Organizations.

The Committee on Lay Health organizations has held two meetings during the past year, at which ways and means of functioning were fully discussed.

As this is a matter which must be carefully considered, so as not to offend any organizations, we must go slowly, but we feel some progress has been made and we hope to make more during the coming year.

E. B. EASTMAN,
Chairman.

On motion, duly seconded, it was *Voted* that this report be referred to the Committee on Officers' Reports.

Report of Committee on Public Relations, Public Policy and Legislation.

Last year's delegates voted certain instructions and policies for this committee to present to the State General Court, and voted the sum of $1,000 for the use of and to aid this committee. Your committee held several meetings before the session of the General Court and during its session also. We drafted such bills and laid out such plans as we thought would accomplish our ends and your desires. Our expenses have been small, but, I am sorry to say, so have our accomplishments. The expense account will be given in the Secretary's report as he is a member of this committee and secretary of it.

On each and every bill we did what campaigning we thought we could in a dignified way and in keeping with our profession. We attended all hearings before Committees and our viewpoints were presented by our attorney, our colleagues and ourselves. We are pleased to say that a number of our members responded nobly to our call and assisted greatly by their presence. On the other hand, we are sorry to report that some of our members did not respond, presumably because of short notice or other urgent reasons. Some members of our Society who hold high positions in the state did appear and proclaimed that they did not appear against these bills, but each of your Committeemen failed to hear one word from them in the behalf of these bills. This was all very discouraging to us.

If results are to be obtained in the future legislatures, a better understanding and coöperation between these members and the Society must be had. The committee is at a loss to know why such attitude has been taken by these gentlemen as some of them were on committees appointed by the House of Delegates that reported favorably on this legislative matter to this body.

The committee reports the following bills introduced and the results obtained in the General Court:

GIVING CERTAIN LIENS TO PHYSICIANS AND HOSPITALS

1. *Lien Law Amended.* Chapter 217 of the Public Statutes is hereby amended by adding at the end thereof the following:

LIENS OF PHYSICIANS AND HOSPITALS

38. *Upon Claims for Insurance.* Any physician or hospital that has entered into an implied or expressed contract with a person who has suffered personal injuries and who has a claim arising from such injuries against another person shall have a lien against any sum due or which may become due from such other person to the injured person or for his benefit to the extent that such physician or hospital may give treatment or perform services to or for such injured person in connection with or growing out of such injuries, but not exceeding the total amount due or to become due to the injured person, or for his benefit, from such other person because of such injuries. Such physician or hospital shall have a similar lien against any sum due or which may become due from any insurance company because of or in connection with such personal

injuries whether the same be payable directly or indirectly to the person causing the injury as an indemnity for damages recovered for said injuries, or whether the same be payable directly or indirectly to the injured person or for his benefit.

39. *How Made Effective.* The lien provided by the foregoing section shall become effective upon the physician or hospital giving to the person or insurance company affected a written notice of intention to claim the lien. The notice shall give the name of the person for whom treatment or services have been performed or are to be performed, the value of the treatment or services already furnished for the injured person, the best possible estimate of the further time that such services or treatment may be required, and, in case the notice is given to an insurance company, the name of the policy holder against whose claim the lien is intended to run. The notice shall be sent by registered mail to the person affected at his last known address, or if an insurance company, to such company in care of the insurance commissioner. Upon receipt of any such notice, the insurance commissioner shall notify the company thereof in such manner as he is required to notify foreign companies of attachments against them made in his office.

40. *How Secured.* Any such lien may be secured by attachment made within one year after the giving of notice as provided by the last foregoing section, such attachment to be by trustee process naming the person or company affected as trustee. Service thereof against any insurance company shall be made upon the company through any resident agent of the company, or, if there be no such resident agent, upon the insurance commissioner as agent for such company.

41. *To What Extent Valid.* No settlement, whether before or after judgment, effected without the consent of any lienholder by other interested parties shall invalidate any lien created hereunder, and if the money shall be paid in accordance with such settlement the parties who made the same shall be jointly and severally liable to the physician or hospital, or to both, for the lien hereby created.

42. *Takes Effect.* All acts and parts of acts inconsistent with this act are hereby repealed, and this act shall take effect upon its passage.

This bill was presented to the House and referred to the Judiciary Committee. After due hearing was given to the bill, it was revised by the Committee, and was reported back to the House unfavorably. A minority report was submitted. The amended bill came up and Dr. William E. Reed and others spoke at length in its behalf, but it was indefinitely postponed.

Extending the Powers of Towns With Respect to the Public Health

Be it enacted by the Senate and House of Representatives in General Court convened:

1. *Physicians.* Paragraph XXIII of section 4 of Chapter 42 of the Public Laws is hereby amended by adding at the end of said paragraph the following: Two or more neighboring towns may each make appropriations for the joint support of the same physician, who shall be resident in one of said towns. The selectmen of the several towns making appropriations for the support of the same physician shall constitute a board for the purpose of employing and dismissing such physician; so that said paragraph as amended shall read as follows: XXIII. Physicians. To support a resident physician, in towns which otherwise would be without the services of such physician, appropriation to be expended in quarterly payments. Two or more neighboring towns may each make appropriations for the joint support of the same physician, who shall be resident in one of said towns. The selectmen of the several towns making appropriations for the support of the same physician shall constitute a board for the purpose of employing and dismissing such physician.

2. *Hospitals.* Paragraph VI of section 4 Chapter 42 of the Public Laws is hereby amended by adding at the end of said paragraph the following: Two or more neighboring towns may each make appropriations for the aid of a hospital or clinic or health center, either one or more of them, located in one of said towns; so that said paragraph as amended shall read as follows: VI. Hospitals. To aid hospitals. Two or more neighboring towns may each make appropriations for the aid of a hospital or clinic or health center, either one or more of them, located in one of said towns.

3. *Residence of Health Officers.* Section 2 of Chapter 126 of the Public Laws is hereby amended by adding at the end of said section the following: and except, also, that upon the recommendation of the selectmen of each of several towns the state board may in its discretion appoint any qualified person resident in one of said towns as health officer for all of said towns, and such joint officer shall receive such compensation from each town as the selectmen thereof or the town shall fix; so that said section as amended shall read as follows:

2. *Residence.* Said health officer shall be a resident of the town for which he is to act, except that the state board may appoint any qualified person to act in unorganized localities; and except, also, that upon recommendation of the selectmen of each of several towns the state board may in its discretion appoint any qualified person resident in one of said towns as health officer for all of said towns, and such joint officer shall receive such compensation from each town as the selectmen thereof or the town shall affix.

4. *Takes Effect.* All acts and parts of acts inconsistent with this act are hereby repealed, and this act shall take effect upon its passage.

This bill was presented to the House and referred to the Committee on Public Health, was reported back to the House with a favorable majority report and has passed and become a law.

Relating to the Revocation of Licenses to Practice Medicine

1. *Revocation.* Section 14 of Chapter 204 of the Public Laws is hereby amended by striking out the whole thereof and substituting therefor the following: 14. Revocation. The board may revoke the license of any licensee who has been convicted of a crime punishable by imprisonment in the state prison, or whose moral character or personal habits are such as to unfit him for the practice of medicine. The board

shall revoke the license of any licensee who obtained it by fraudulent means, or in case the licensee shall have been convicted of homicide as the result of malpractice.

2. *Takes Effect.* All acts and parts of acts inconsistent with this act are hereby repealed, and this act shall take effect upon its passage.

This bill was introduced into the House and referred to the Committee on Public Health. Your Committee appeared in its behalf, but after a rather stormy hearing of evidence brought in by several townspeople, the Committee from the House reported unfavorably and the bill was lost. We suggest that this bill should be again taken up to the General Court for its consideration.

EXTENDING THE POWERS OF THE INSURANCE COMMISSIONER

1. *New Powers.* Chapter 271 of the Public Laws relating to the insurance commissioner is hereby amended by renumbering sections 16, 17, 18, 19, 20 and 21, as, respectively, 20, 21, 22, 23, 24 and 25, and by inserting the following sections:

16. *Complaints.* Any person who feels aggrieved by the acts of any insurance, bonding, liability or casualty company or those of its agents, or any insurance, bonding, liability or casualty company aggrieved or in dispute with its policyholder or any claimant against it, may file a written complaint with the commissioner, setting forth the grounds of grievance and asking for a hearing thereon.

17. *Notice.* The Commissioner shall fix a date for hearing of the complaint, which shall be not less than one month later than the day of filing such complaint, and shall give to each complainant and to the parties complained against a written notice of such hearing. The notice shall contain the name of each complainant and the substance of the complaint, and shall be sent by registered mail at least fourteen days before the date set for hearing.

18. *Findings.* After hearing the Commissioner shall make his findings, shall seasonably notify all parties thereof, and may publish the same if he deems that the public good requires.

19. *Use of Findings.* The Commissioner may consider the findings made upon such complaint, so far as pertinent, as evidence of the financial condition of the company, its ability to fulfill its obligations, whether it has complied with the law, and the equity of its dealings with its policyholders, to be used in the determination in any appropriate circumstances of the question as to whether the company shall be authorized to do or to continue to do business in this state.

20. *Takes Effect.* All acts and parts of acts inconsistent with this act are hereby repealed, and this act shall take effect upon its passage.

This bill was amended by the Committee on Insurance and the following bill was substituted:

Be it enacted by the Senate and House of Representatives in General Court Convened:

1. *Insurance Commissioner.* Amend Chapter 271 of the Public Laws by inserting after section 12 the following new sections: 12a. Investigations Authorized. The Insurance Commissioner, upon written complaint of any person holding a policy in any surety or insurance company doing business within this state that he is aggrieved by any act of such company, shall cause such investigation to be made of such complaint as he may deem necessary. Said Commissioner may hold a public hearing, if he deems it advisable, after giving reasonable notice to the company and persons involved. 12b. Findings. After the investigation the commissioner shall, within thirty days, make known his findings to all persons involved.

2. *Takes Effect.* This act shall take effect upon its passage.

This bill as revised was passed by the House and Senate and approved by the Governor May 7, 1931.

PROVIDING FOR THE MENTAL EXAMINATION OF PERSONS CHARGED WITH CERTAIN CRIMES

1. Chapter 366 of the Public Laws is hereby amended by adding at the end thereof the following new section:

50. *Mental Examinations.* Whenever a person is indicted for an offense the punishment of which may be death, or whenever a person who is known to have been indicted for any other offense more than once, or to have been convicted of a felony, is indicted or is held by a municipal court or justice to answer for an offense not within the jurisdiction of such municipal court or justice to determine, the clerk of the court in which the indictment is returned, or the clerk of the municipal court or the justice, as the case may be, shall give notice to the Commission of Lunacy and the Commission shall cause such person to be examined with a view to determine his mental condition and the existence of any mental disease or defect which would affect his criminal responsibility. The Commission may delegate the examination to any competent physician or physicians within the state, and those making examination shall cause a report of the examination to be filed with the clerk of the court in which the trial is to be held, and the report shall be accessible to the court, the attorney general, the county solicitor, and to the attorney for the accused. In the event of failure by the clerk of a municipal court or the justice to give notice to the Commission as herein provided, the same shall be given by the clerk of the superior court after entry of the case in said court. Upon giving the notice required by this section, the clerk of a court or the justice shall so certify on the papers. A physician making such examination shall, upon certification by the Commission, receive from the county such fees and expenses as the presiding justice of the superior court shall allow. Any clerk of court or justice who wilfully neglects to perform any duty imposed upon him by this section shall be punished by a fine of not more than fifty dollars.

2. *Takes Effect.* All acts and parts of acts inconsistent with this act are hereby repealed, and this act shall take effect upon its passage.

We feel that had this bill received the support that it should have had before the Committee it would have been favorably reported. It was reported back to the House unfavorably and was lost.

In regard to the recommendation of having a survey on Cancer and Incurable Diseases, two bills were

presented; one from the Senate dealing only with cancer, the other, a Joint Resolution from the House, presented by Mr. Ahern, which is as follows:

JOINT RESOLUTION

Authorizing a Special Commission to Investigate the Subject of Cancer and other Chronic Diseases.

Resolved by the Senate and House of Representatives in General Court Convened:

That the Governor, with the advice and consent of the Council, shall appoint a commission of five citizens of whom no less than two shall be licensed physicians in the state, to make a survey of the state to determine the number of cases of cancer of all types and other chronic diseases incapacitating for usefulness and ability to earn a livelihood. The said commission shall report its findings to the next legislature stating the approximate numbers of incurables and facilities under present regulations of hospitals and other institutions to receive such cases and properly care for and treat them according to present-day accepted standards, and shall make such recommendations as their investigations warrant to the next legislature. The members of the commission shall receive no compensation, but shall be reimbursed for their actual expenses in the performance of their duties as such members. The commission shall have power to employ all necessary clerical and stenographic assistance, the accounts therefor to be approved by the governor and council. The sum of one thousand dollars is hereby appropriated to carry into effect the provisions hereof, and the governor is hereby authorized to draw his warrant therefor.

This bill was presented to the House and referred to the Committee on Appropriation and a new draft was made by the Committee on Appropriation which is as follows:

HOUSE BILL—No. 284

(In New Draft With New Title)
(Introduced by Committee on Rules)
(Referred to Committee on Appropriations)

State of New Hampshire
An Act

Providing for State Aid for Persons Suffering from Cancer and for the Creation and Appointment of a Cancer Commission.

Whereas it appears that in this state several hundred residents are annual victims of the disease known as cancer, and

Whereas adequate methods of combating and treating this disease are lacking in many parts of the state, and inaccessible to those without means, and

Whereas it is the duty of the state to promote, protect and preserve the health of its residents, and

Whereas in fulfilling this duty it appears advisable that a thorough, proper and careful investigation and survey be made of the cancer situation as it exists in New Hampshire, and that preventive and curative possibilities be rendered by the state, therefore

Be It Enacted By The Senate and House of Representatives In General Court Convened:

1. *Commission.* There shall be a State Cancer Commission, consisting of the Governor ex-officio and four others to be appointed by the Governor with the advice of the Council, one of whom shall be a member of the State Board of Health, another a member of the New Hampshire Medical Society, and the remaining two to be non-medical. Members of the Commission shall serve without compensation, but shall receive their necessary expenses while in the performance of their duties.

2. *Term of Office.* The four appointive members shall serve at the will of the Governor and Council.

3. *Duties.* The commission shall establish, organize and conduct cancer clinics in such parts of the state as they may deem most advantageous for the public health, and may authorize the expenditure of state funds for the support of clinics conducted by other agencies upon such terms as to supervision by the commission as they deem wise.

4. ——; *Investigation and Reports.* The Commission shall from time to time make such studies of the cancer situation in New Hampshire as they deem circumstances require and report their recommendations concerning the same to the legislature, to the state board of health and to the New Hampshire Medical Society.

5. *Organization.* The Governor shall be ex officio chairman of the Commission. The Commission shall elect one of their number to be secretary and may also employ such clerical assistance as the Governor with the advice of the Council may approve.

6. *Aid to Dependents.* Out of the appropriation available under this act the Commission may furnish at the expense of the state clinical care for indigent patients. The Commission may grant state aid for the care of dependent persons suffering from cancer in any place, provided that the state aid granted in any individual case shall not exceed in amount the sums expended by any municipality, town or county in this state.

7. *Appropriations.* There shall be and is hereby appropriated for this act the sum of twenty-five thousand dollars for the fiscal year ending June 30, 1932, and the sum of twenty-five thousand dollars for the fiscal year ending June 30, 1933. The Governor is authorized to draw his warrant for the same out of any money in the treasury not otherwise appropriated.

8. *Contributions from Other Sources.* The Commission is authorized to receive voluntary contributions from any source other than the state treasury and to administer and to expend the same for the purpose of this act. If any such contribution shall be made on condition that the principal shall be invested and the income only used, such gifts shall be deposited with the state treasurer and by him invested and re-invested and the income placed by him to the credit of the Commission.

9. *Takes Effect.* All acts inconsistent with this act are hereby repealed and this act shall take effect July 1, 1931, except that for the purpose of appointment of the members of the commission and their organization, and making plans by the Commission it shall take effect upon its passage.

This bill was passed after due hearing and the appearance of the Governor in its behalf. It passed the House and Senate and became a law. We feel, however, that the bill presented by Mr. Ahern is

more acceptable because it includes other incurable diseases which House Bill No. 284 does not.

We beg to submit this report for your consideration.

C. T. LADD, *Chairman*,
JAMES W. JAMESON,
O. H. HUBBARD,
D. E. SULLIVAN,
HENRY O. SMITH.

On motion of Dr. F. E. Clow, duly seconded, it was *Voted* that this report be referred to the Committee on Officers' Reports, and it was also *Moved*, on motion of Dr. F. E. Clow, that the House of Delegates extend to the Committee on Public Relations, Public Policy and Legislation thanks for the tremendous amount of work put in before the Legislature the past winter.

New Business.

The following proposed amendment to the By-Laws submitted by the Committee on Constitution and By-Laws was read by the Secretary:

PROPOSED AMENDMENTS TO BY-LAWS

Chapter VIII, Sect. 1, for "A committee on Medical Defense" substitute "An Advisory Committee on Jurisprudence."

Sect. 5, for "Committee on Medical Defense" substitute "Advisory Committee on Jurisprudence."

Chapter IX, new title: "Advisory Committee on Jurisprudence."

Sect. 1, for "Committee for Medical Defense" substitute "Advisory Committee on Jurisprudence."

Sect. 4, for "the committee for Medical Defense" substitute "this committee".

Sect. 12, for "Committee for Medical Defense" substitute "Advisory Committee on Jurisprudence."

HENRY O. SMITH,
FRED E. CLOW,
THOMAS W. LUCE,
Committee on Amendments to Constitution and By-Laws.

In accordance with the By-Laws, this proposed amendment was tabled until Tuesday, May 19.

DR. DINSMOOR: I have understood from the President of the Society that there has been a pretty general complaint all over the State about the way in which the tuberculosis clinic was conducted. I know we have felt in our county that it is open to considerable criticism; in fact we feel very strongly on the subject, for at the last meeting of the County Society they appointed a committee to confer with Doctor Kerr, and of this committee I was one of the members. We certainly had a heart to heart talk and I think it may interest you if I refer you to his declaration of the principles for the conduct of a county tuberculosis clinic and nursing program. (See Report of Committee on Tuberculosis*.)

SPEAKER: I would like to ask on what occasion did this matter come up before your county Medical Society.

DR. DINSMOOR: We discussed it before the County Medical Society and a committee was appointed to confer with Doctor Kerr, and after that conference this letter was sent to us. The County Society has not yet had a meeting since that conference.

DELEGATE: I would like to inquire what Dr. Dinsmoor wishes the House to do.

DR. DINSMOOR: Principally to see what the men think about it and what the experience has been in other counties in the State with the tuberculosis program.

DR. LORD reported that at a Grafton County meeting held this year it was demonstrated that there was a great deal of feeling in other parts of the State. That at that meeting thirty members were present and what was of great interest to him was the fact that he did not believe that three per cent. of those present had ever seen the sanatorium or had even visited it within ten years.

DR. PROUTY of Cheshire County reported that in Cheshire County, a nurse employed there would refer cases to doctors outside the county when the case could be taken care of just as well locally. If she had a child who had adenoids or tonsils for operation, she would refer it to a doctor outside the county, not a member of the State Medical Society, and there has been considerable friction in the county with this tuberculosis nurse. He had a man in his office this last week, who said he was going to the tuberculosis clinic to get a good physical examination. He didn't think he had tuberculosis, but thought he could get an examination and that that is the attitude of a good many; they get a free physical examination.

On motion, duly seconded, it was *Voted* that the memoranda of Cheshire County be referred to the Committee on Officers' Reports in connection with the report of the Lay Health Committee.

Upon motion, duly seconded, it was *Voted* to adjourn until 8:30 E. S. T., Tuesday morning, May 19.

*This report will appear in the issue of July 2.

MISCELLANY

NEW MEMBERS

Robert E. Biron, 1037 Elm Street, Manchester, N. H.

Samuel Dryden Snow, North Conway, N. H.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17231

HEADACHE, VOMITING AND WEAKNESS OF FOUR DAYS' DURATION

NEUROLOGICAL DEPARTMENT

A twelve year old American schoolboy came to the Emergency Ward October 10 complaining of headache, vomiting, pain and weakness of four days' duration.

For three days before the onset the patient had been listless. October 6 he had severe headache and a fever of about 100°, and vomited greenish material three times. The vomiting was not projectile. The following day the headache and fever continued but there was no vomiting. He now began to complain of shooting pains in the arms, legs and shoulders. There was no tenderness, swelling or redness. Two nights before entry he complained of weakness of the legs. The morning before entry he complained of trouble in moving his feet. Later in the morning he was unable to move his arms or legs. Later in the day his breathing became rapid and shallow. He was sent to a hospital. When the respiratory difficulty increased he was transferred to the Massachusetts General Hospital.

The family history is not significant.

He had had the minor diseases of childhood. The year before admission he had scarlet fever. He had frequent colds in winter.

No clinical examination could be done at entrance, as the boy's breathing was almost imperceptible and it was necessary to keep him in the respirator continuously except for periods of two or three minutes. He was cyanotic, and completely paralyzed below the neck. The cranial nerves were normal.

The amount of urine was 16 to 112 ounces. From December 25 to February 16 the amount was normal. The specific gravity was 1.026 to 1.009. There was a large trace to the slightest possible trace of albumin at two of four examinations. The sediment showed occasional white cells at three examinations. The blood was not examined until late in the course of the disease. The stools showed no gross or occult blood.

The temperature was 104.7°, the pulse 130 at entrance. The following day the temperature came down to 99.2°. After October 14 it was normal with an occasional rise to 99.5° and four periods of elevation, November 14-15 (vomiting), 21-25 (phlebitis), March 28 and April 4-11. The pulse was 80 to 120 until April 5, then 95 to 142.

The patient was put at once into the respirator. His color improved immediately and his temperature and pulse came down. He was conscious and able to talk. He remained in the same condition for a month.

November 12 he vomited four times, at first "bile", but the fourth time food recently taken. The urine that day contained the slightest possible trace of albumin with granular casts. His bowels moved well with enemas. He was out of the respirator that day for thirty-two minutes. He continued to vomit twice daily for the next two days. He took little or no food and only a little water. On the third day he was put on a high caloric diet with frequent feedings. The vomiting then stopped. The following week there was mild phlebitis of the left leg with moderate swelling and a fever of 101°. After five days this quieted down. He could stay out of the respirator only twenty minutes a day. There was practically no improvement. December 3 he vomited again. It was very difficult to make him eat. He slowly lost weight. The possibility that he might go on living in the respirator but not out of it aroused many discussions, some of them philosophical. February 4 he was in exactly the same condition.

March 1 he stayed out of the respirator for two hours, and during the next ten days stayed out an hour at a time quite frequently. It was now felt that there was no question that so far as his respiratory muscles were concerned he could get along without the machine and that his dependence upon it was mental rather than physical. March 13 he was out for three hours at one time, March 18 four hours, March 26 five and a half hours and March 31 six hours without ill effects. He occasionally vomited.

April 4 his temperature rose to 104.2°, the leukocyte count to 18,700. There was no cough or sputum. He vomited several times. The respirations were 40 when he was taken out of the respirator for five minutes. No signs were found in the chest, but examination was very difficult. He continued to have fever. April 9 he felt worse, had difficulty in getting enough air even in the respirator. His lips were crusted, his eyes blood-shot, his nose red and stuffed. He choked with mucus in his throat. He kept calling for increase of pressure and refused to come out of the respirator at all. Late that night he was hard to rouse for a short period. Contrary to all expectations he lingered. His temperature fell to subnormal. April 14 he died.

Clinical Discussion

BY RICHARD C. CABOT, M.D., AND
WILFRED BLOOMBERG, M.D.

NOTES ON THE HISTORY

Dr. Cabot: This is the sort of case that people are always seeing in children in practice and cannot help being tremendously worried about. Is he going to have meningitis or poliomyelitis? It is very troublesome, and very hard to get any further evidence at the outset.

The trouble in moving his feet and then inability to move his arms or legs certainly suggest poliomyelitis, apparently of the type which involves the respiratory center and which is so commonly fatal.

NOTES ON THE PHYSICAL EXAMINATION

The laboratory reports show everything negative except the nervous system, in which we still see no reason to suppose anything other than poliomyelitis. It does not sound like meningitis, and at his age vascular and neoplastic lesions can ordinarily be ruled out.

They kept up therapy hoping that the lesion would heal or go down. They cannot keep him in the respirator forever. He cannot breathe himself, but the hope is that if the poliomyelitis improves very much of itself and without our knowing how, this respiratory difficulty will improve also.

They probably wondered whether he had a kidney complication with uremia, but they decided I think that he had not.

By March you see things are looking better. It was in the hope of this that they were justified in keeping him here so long.

It is a new idea to me that there should be a mental element in dependence upon the machine, but I can see how there might.

I should say that at about the end of March they thought he was going to recover from the respiratory paralysis. Whether he is ever going to get the use of his muscles I cannot say, but people sometimes do get back some use of their muscles after a time as long as this. It was an extremely good piece of work. It must have meant a great deal of expense, but if he is going to get well it was perfectly justified.

DIFFERENTIAL DIAGNOSIS

I take it he died of some infection going into the respiratory tract, perhaps a bronchopneumonia. I do not see any good evidence of meningitis or of any other localized infection. I should say then that this is a case of high poliomyelitis with death from bronchopneumonia. If there is anything more we have no evidence, from the very limited physical examination they could make, on which to predict it.

Dr. Bloomberg: The record is somewhat inadequate in that progress notes could not be accurately kept, with changing house officers and a patient remote from the general wards, for a period of six months and three days. As to the question of his possible mental reaction to coming out of the respirator, that came up at one time, and with the coöperation of Professor Drinker we managed to shut off the power of the machine in such a way as not to affect the sound of the machine. The fact that the boy suffered respiratory embarrassment in the absence of any change in the sound of the machine made it possible for us to rule out quite definitely a purely mental reaction. He was improved, but we interpreted that as a sudden improvement in the power of the diaphragm, which was the only one of the respiratory muscles functioning. We feel that his six hours out was simply improvement in the power of the diaphragm and that it was not concerned with any mental reaction as we at first thought possible.

Dr. Cabot: Was there any reason to suppose that if he had not got this infection you might have succeeded in getting him able to stay out of the respirator?

Dr. Bloomberg: The improvement lasted only for a few days. After that he was not able to be out quite so long for the four or five days remaining before he developed his antemortem symptoms.

Dr. Cabot: What did he show at the end of six hours?

Dr. Bloomberg: He was conscious enough to insist on being put back, and he was getting a headache and beginning to feel like vomiting. He turned white, peculiarly enough, not blue. We always knew that if he was out too long he would feel very badly and have a headache after he was put back. Six hours a day means six hours in the course of the day split up into three periods of two hours each.

Dr. Cabot: Did he look pretty normal while he was out?

Dr. Bloomberg: I have never seen anyone get so atrophic. He developed bedsores over the scapulae which went down to the bone. He dropped in weight to about forty pounds.

Dr. Cabot: Partly that was what they called trophic. They fed him pretty well.

Dr. Bloomberg: It was partly trophic and partly ordinary pressure decubitus. He could not of course be moved about, and the nurses could not get at his back and the bedsores to take care of them.

Dr. Cabot: This point about the bedsores of course we did not get in our record, and it is very important in relation to the cause of death. When people get such bedsores a blood infection, general sepsis, often follows. Quite commonly the cases I remember had general septicemia as the immediate cause of death. It seems quite possible that that is all he had here, though it is also quite possible that there is some

localization in the lungs and very possibly elsewhere.

Someone asked a question about the origin of the phlebitis. The bedsore now seems the natural point to look for as the source of origin.

DR. BLOOMBERG: That phlebitis was a very definite thing. The case had reached the point then where we hoped there would be sufficient infection to settle a very difficult problem. Unlike other patients who were older and bigger and more difficult to handle, this boy did not develop pneumonia after a short period. It was our feeling finally that he might have a pulmonary infection which we could not find. The service felt that it was general exhaustion rather than a definite pulmonary infection which finally carried him off.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Anterior poliomyelitis.
Respiratory paralysis.

DR. RICHARD C. CABOT'S DIAGNOSIS

Anterior poliomyelitis.
Terminal infection.

ANATOMIC DIAGNOSIS

Anterior poliomyelitis.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We did not find any immediate cause of death. He did not have a pneumonia of any significant extent certainly.

The central nervous system showed the characteristic findings or what we may suppose are the characteristic findings of late poliomyelitis. We have not had a chance of course to see many poliomyelitis cases at this stage. Cases as severe as this have always died much earlier in the course of the disease. There were very few nerve cells left in the cervical cord, particularly in the general region of the accessory muscles of respiration. The skeletal muscles showed most extraordinary atrophy. There were slight traces of attempts at regeneration, but evidently not very successful.

DR. CABOT: He had no blood infection, nothing in the heart?

DR. MALLORY: No, nothing.

CASE 17232

THREE MONTHS' HOARSENESS AND WEAKNESS

MEDICAL DEPARTMENT

A married Canadian woman twenty-eight years old was referred from the Outpatient Department, where she came complaining of hoarseness and weakness of three months' duration. She entered the wards on the same day, February 16.

Nine months before admission, following the birth of her second child, the patient stopped menstruating. She did not feed her child at the breast. She soon became aware of general weakness, which had grown slowly but steadily worse. She did not give up, however, but forced herself to do her housework. Three months before admission she began to have a troublesome hacking cough, worse at night, productive of about two tablespoonfuls of white and yellow sputum, never bloody or foul. The cough had increased in frequency and severity. She had had much sweating at night and had grown steadily hoarser until at present her voice was practically gone. For three weeks she had been weaker than ever, had had increasing shortness of breath on exertion and complete loss of appetite. Her weight was only 15 pounds less than her best weight, a year before admission. She had lost 12 pounds in the past three months.

Her past history was negative.

Clinical examination showed a fairly well developed but extremely emaciated young woman with pale skin and mucous membranes, lying flat, breathing rapidly in no discomfort. She could not speak above a whisper. She was coughing much. She was so extremely ill that only a cursory examination was made. The significant findings were confined to the chest. The heart was normal. The blood pressure was 106/58. The left chest front and back showed lag and dullness to flatness with intense bronchial breathing, patches of cavernous breathing, coarse and fine crepitant râles with metallic tinkling, increased spoken voice (bronchophony), and increased whisper. There was diastasis of the recti.

The amount of urine was normal. The specific gravity was 1.012 to 1.026. The urine showed no albumin or sugar in three examinations, 1 to 3 leukocytes at all, granular casts once. None of the three specimens was catheterized. Blood examination showed 6,500 to 8,700 leukocytes, 86 per cent polynuclears, hemoglobin 45 to 55 per cent, 3,020,000 to 2,720,000 reds, moderate achromia. A Hinton test was negative.

The temperature was 98.4° to 105.9° with wide daily swing. The pulse was 92 to 147. The respirations were 20 to 39.

X-ray examination showed fine discrete mottling occupying the greater portion of the right lung, most dense in the midportion. The areas of dullness varied from one millimeter to one centimeter in diameter. There was rather dense confluent mottling on the left side along the border of the heart from the sixth to the ninth ribs posteriorly. Above this dense area of dullness there were numerous rounded areas of diminished density with sharply defined margins showing the characteristic appearance of cavities. The left diaphragm was irregular. The costophrenic angles were clear. The heart and mediastinum were not definitely displaced.

A throat consultant found some secretion on the inner surfaces of the vocal cords but no ulceration. The right cord seemed sluggish. He was unable to make a diagnosis.

The patient was weak but otherwise quite comfortable. She showed very little change. Her chief complaint was soreness in the throat which troubled her in eating. Her ten months old child entered one of the children's wards with an infection. March 13 the patient died.

Clinical Discussion

BY RICHARD C. CABOT, M.D., AND GEORGE W. HOLMES, M.D.

NOTES ON THE HISTORY

Dr. Cabot: The history is certainly very suggestive of a tuberculosis starting after childbirth, as it so often does.

NOTES ON THE PHYSICAL EXAMINATION

We could not ask for more evidence of an advanced pulmonary tuberculosis than the lung examination gives us.

There was diastasis of the recti, presumably from the last pregnancy and of no significance.

The only difficulty is to imagine what else this case could be besides what it perfectly obviously is. I cannot think of anything besides chronic tuberculosis that would produce those signs. They have queer organisms on the Pacific coast, I believe, which can produce cavities in the lung in the same way. Here I do not think there is anything except tuberculosis that can do it.

I suppose there was also some tuberculosis in the throat.

DIFFERENTIAL DIAGNOSIS

Outside the lungs and the possible lesion of the larynx there is no evidence of tuberculosis elsewhere. But a good many cases without any more evidence than this have some tuberculosis in the bowels, though we have not the signs of it.

Dr. Holmes: The appearance in the films is that of a very extensive process involving the greater part of both lungs. The shadows are fine and evenly distributed throughout the right lung. In the midportion is an area of marked density and a bubble-like appearance reported as multiple cavities. The right border of the heart is visible to the right of the spine where you would expect it. This very dense area might represent fibrosis of the lung or pneumonic consolidation. The appearance is that of a rapid, widespread tuberculosis with cavity formation.

Dr. Cabot: Is there anything else it could be?

Dr. Holmes: Some of the yeast infections could give such an appearance, and there are gangrenous conditions of the lung that would look like it.

X-RAY INTERPRETATION

The findings are consistent with an advanced pulmonary tuberculosis which may be miliary. There is also cavitation.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Pulmonary tuberculosis and laryngeal tuberculosis.
Miliary tuberculosis?

DR. RICHARD C. CABOT'S DIAGNOSES

Advanced pulmonary tuberculosis.
Possible tuberculosis of the larynx.
Possible tuberculosis of the bowels.

ANATOMIC DIAGNOSES

Tuberculosis of the lungs with cavity formation.
Tuberculosis of the larynx, the trachea and the bronchi.
Tuberculosis of the small and the large intestine.

Pathologic Discussion

Dr. John I. Bradley: The lungs showed a typical extensive advanced tuberculous process. The major portion of the left upper lobe was occupied by a number of large communicating cavities. The lower portion of the left upper lobe and the upper portion of the lower lobe were studded with thickly set tubercles roughly 3 to 4 millimeters in diameter. The lower portion of the left lower lobe was studded with more widely separated similar conglomerate tubercles. On the right side all the lobes were studded with tubercles. In the lower portion of the upper lobe there was an area of grayish consolidation. In the center of this area the tissue was very friable and there was early cavity formation. The intestinal tract showed numerous ulcers in both the small and the large intestine, most marked in the cecum and colon. One retroperitoneal node was slightly enlarged and caseous.

Dr. Holmes: Did you examine the larynx?

Dr. Bradley: The larynx, and the trachea and the bronchi as well showed extensive involvement. The mucosa was edematous, injected, and showed numerous shallow ulcerations, evidently tuberculous.

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PLARR'S "LIVES" AND A FEW OTHER BOOKS

MR. VICTOR G. PLARR for many years served as Librarian of the Royal College of Surgeons of England. In 1912, Sir John Bland-Sutton suggested that Mr. Plarr begin a biographical record of the Fellows of the Royal College. This was done very faithfully and later, in 1923, completely revised and prepared for publication in order to preserve for the purposes of reference the useful work already accomplished. Money for the publication of this collection recently was given to the College by Mr. Thelwall Thomas, F.R.C.S. of Liverpool and the result is two large volumes containing over 2500 biographies of members elected to the College since it was established in 1843[1]. The lives of the earlier members of the College, before a royal charter was granted, are yet to be recorded. The books form a chronicle of British surgery; for each man there appears a brief summary of his life, as well as a list of his important publications. Many names are, of course, familiar to us, but a great deal of satisfaction can be attained by re-reading a brief but accurate sketch of men like Joseph Hodgson, Sir Jonathan Hutchinson, Lord Lister, Sir Benjamin C. Brodie, and many others. The volumes contain an excellent index and will be an invaluable reference book to British surgery for years to come.

Two other books on medical history have recently come to hand from London. One is by S. G. B. Stubbs and E. W. Bligh[2]. Neither of these men belongs to the medical profession, although Mr. Bligh has had many contacts with physicians through his association with old medical books. Their book is somewhat different from any that has been published on the subject, for their object in writing it was "to outline the evolution of ideas in the long quest for health from the earliest evidences of disease to the modern expansion of scientific medicine". These authors, therefore, are primarily interested in the progress of medical ideas and not in the collection of historical and biographical incidents. The book, consequently, contains few sketches of individual doctors, but it is, nevertheless, extremely interesting on account of its excellent style of presentation. One follows ideas of hygiene from one period to another in a manner more clear than in any book of its type yet to appear. The illustrations, too, are particularly apt and contain many unusual plates of great interest. This book can be highly recommended to anyone interested in the history of medicine. It is a very readable account of the subject and perhaps all the better because of not being written by trained medical observers.

The second book, a brief but adequate history of paediatrics, comes from the pen of a practicing paediatrician of London[3]. The book had its origin as a series of lectures given, two years ago, at the Royal College of Physicians. The author became interested in the history of paediatrics at this time and the present volume is the result of his labors for the last two years. When he was partway through his task, he says in the preface, "I realized that to a large extent my researches must cover ground which had already been explored, and then indeed it seemed almost an impertinence to attempt such an undertaking when so masterly and delightful an anthology of the subject had already appeared in America, from the pen of Dr. John Ruhräh in his *Pediatrics of the Past*." The author, however, of the present volume was too much in love with his subject to give it up and, fortunately, he went ahead with it. His book, unlike that by Stubbs and Bligh, approaches the subject from the biographical point of view. The various chapters, therefore, consider men and their works. After a review of the Graeco-Roman period and medieval times, he comes to Thomas Phaer, the first Englishman to write on diseases of children (1545). Phaer was followed by a long list of English doctors, including Rob-

ert Pemell, James Primerose, Thomas Sydenham, Thomas Willis, John Burton, Richard Wiseman, and many others. The lives of these men and a description of their works, as well as their relation to one another, are all delightfully set forth by Dr. Still. His book is also carefully illustrated, although the illustrations are of a more conventional type, consisting largely of portraits, with an occasional title page of an important book. References to the literature appear throughout the text and there is a good index. This is one of the best histories of a branch of medicine yet to appear. The emphasis, naturally, is a little upon the British side of the story, but that does not detract from the general worth of the book.

A book of an entirely different character is that by Professor McMurrich on Leonardo da Vinci[4]. This work, a labor of over ten years, has been well worth waiting for. Professor McMurrich has investigated with great care the well-known anatomical drawings left by Leonardo. These superb plates, many of which have been published, are known to all scholars. They are of outstanding merit, both on account of their thoroughness and their originality. Leonardo was undoubtedly the greatest scientist of his time, although he was imperfect and fallible, as all great scientists have been. All these qualities are well brought out in his anatomical investigations. In general, Professor McMurrich is justified in his conclusion that Leonardo may rightfully be considered the forerunner of Vesalius, the founder of modern anatomy. Many of the plates have been reproduced in this book, but its worth lies in the careful descriptions and the estimations by McMurrich regarding the anatomical correctness of Leonardo's delineations.

A good general history of medicine is that written by Castiglioni, originally published in Italian but now issued in a French edition[5]. This book covers accurately the whole history of the subject and, although not so scholarly and dependable as Garrison's *History of Medicine*, it is a useful book on account of the emphasis put by the author on the early Italian influences during the Middle Ages and because of its unusual illustrations. It is written in an easy, graceful style and may be read with pleasure.

The last book of this shelf is a volume of poems by Alfred Noyes[6]. This is really Part III of a long poem and is particularly interesting to the medical man on account of its descriptions of a modern surgical operation on a great liner at sea, a supposed conversation between William Harvey and Lord Bacon at Gray's Inn in London, Harvey as the King's physician at Edgehill looking out for the two young princes, bits of Arabian medicine, and occasionally a very modern insight into medical problems today. The author lets his mind run from one century to another in what appears to be a rather disordered manner, but he is really pointing out to all of us how much of a debt we owe to the past for whatever we are doing at the present time. Much of the poetry is delightful and should interest any medical man with even slight literary tendencies.

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2 Six Centuries of Health and Physick: The Progress of Ideas from Primitive Magic to Modern Medicine, by S. G. Blaxland Stubbs and E. W. Bligh, with an introduction by Sir Humphry Rolleston, Bart. London: Sampson Low, Marston & Co., Ltd., [1931]. xvi + 253 pages.

3 The History of Paediatrics: The Progress of the Study of Diseases of Children up to the End of the XVIIIth Century, by George Frederic Still. Oxford University Press, London: Humphrey Milford, 1931. xviii + 526 pages.

4 Leonardo da Vinci, the Anatomist (1452-1519), by J. Playfair McMurrich. Baltimore: The Williams & Wilkins Co., 1930. 20 + 264 pages.

5 Histoire de la Médecine, by A. Castiglioni. Paris: Payot, 1931. 781 pages.

6 The Torch-Bearers. Vol. III. The Last Voyage, by Alfred Noyes. Edinburgh and London: William Blackwood and Sons, Ltd., 1930. 229 pages.

THE IMPROVED SCHICK TEST OUTFIT

We desire to call our readers' attention to a letter in this issue from Doctor Bigelow, Commissioner of Public Health of Massachusetts, regarding the distribution of an improved Schick outfit by his Department.

The Schick test has been and still is a procedure of great value in the prevention of diphtheria. By it one can determine not only the natural resistance or susceptibility of a person to diphtheria, but, quite as important, one can and always should check the success of the immunizing treatment with diphtheria toxin-antitoxin mixture or diphtheria toxoid. It is gratifying to know that each year has seen a greater use of this important test by an increasing number of physicians.

The Schick outfits which have been supplied by manufacturing laboratories have, however, occasioned many just complaints because of certain disadvantages which apparently could not be overcome. In those outfits in which the diphtheria toxin was contained in a vial the amount was frequently so small as to lead to the impression that the makers had failed to put any toxin in the vial. Such outfits also were troublesome because of the necessity of thoroughly mixing, without loss, the small amount of toxin with the salt solution. These outfits in which the toxin was supplied in capillary tubes possessed several disadvantages. Frequently the small tubes were found to be broken or else they broke in handling, while the preparation of the toxin dilution always took time, and frequently inaccuracies of dilution were unavoidable. These difficulties undoubtedly discouraged the use of the Schick test by many physicians.

The manufacturers have, with reason, adhered to these types of packages. Since diphtheria toxin is a dangerous product it had to be supplied in such small amounts that no serious harm would ensue if errors were made in dilution or injection; and, because diphtheria toxin loses its potency rapidly when diluted with salt solution, it was, therefore, necessary to supply both the undiluted toxin and the salt solution diluent for it separately. Consequently all dilutions had to be made just before the use of the Schick outfit.

As a result of recent studies on diphtheria toxin a way has been found to stabilize this toxin when it is diluted to Schick strength so that no decrease in toxicity takes place during the recommended period of potency. Glenny, Pope and Waddington[1], in England, first advocated a mixture of borax and boric acid to be added to the salt solution used for diluting the toxin, and also observed that a small amount of broth would serve the purpose, although this last observation was delayed in publication. It was found, however, by Bunney and White[2, 3] of the Massachusetts Antitoxin and Vaccine Laboratory that, while this borax-boric acid solution preserved the potency of certain lots of toxin, it was not suitable for all lots. Bunney[4] continued the study and found that if a weak solution of peptone is used as a diluent the toxin retains its original strength for a year at room temperature as well as under other unfavorable conditions that would harm even undiluted toxin. Further studies by these authors (as yet unpublished) have shown that by substituting a different peptone in a still weaker concentration it is now possible to supply diphtheria toxin diluted to Schick strength, doing away with the necessity of making fresh dilutions with each package. Furthermore, this preparation of diluted toxin will retain its potency for a considerable length of time, even when kept at room temperature.

Because of this improvement which greatly facilitates the use of this reagent, the slight unavoidable error incident to the necessity of making fresh dilutions should be appreciably reduced and, because of the greater simplicity of the outfit and its manipulation, the Schick test should find still greater favor than it has in the past. We understand that this ready-diluted toxin has been approved by the National Institute of Health at Washington and is being or is about to be distributed by the leading manufacturers of biologic products in this country.

REFERENCES

1 Glenny, A. T., Pope, C. G., and Waddington, Hilda: The stability of Schick toxin. Jour. Path. and Bact., 1928, 31, 133.

2 Bunney, W. E., and White, Benjamin: The buffered diluent for Schick toxin. Proc. Soc. Exper. Biol. and Med., 1929, 26, 801.

3 Bunney, William E., and White, Benjamin: Advantages and disadvantages of the buffered diluent for diphtheria toxin. Jour. Immunol., 1931, 20, 61.

4 Bunney, W. E.: A new diluent for diphtheria toxin in the Schick test. Jour. Immunol., 1931, 20, 71.

The Massachusetts Medical Society

ANNUAL MEETING OF THE COUNCIL

THE Annual Meeting of the Council will be held in the Georgian Room of the Hotel Statler, Boston, on Tuesday, June 9, 1931, at 12 o'clock, noon.

Business:

1. Reading record of last meeting in abstract.
2. Nominating Councilors answer to names and retire.
3. Report of Committee on Membership and Finance, on Membership.
4. Reports of committees to consider petitions for restoration to the privileges of fellowship, and committees appointed to consider new petitions.
5. Reports of the Standing Committees.
6. Reports of the Special Committees.
7. Nomination of a retired Fellow for Affiliate Fellowship in the American Medical Association.
8. Introduction of a proposed amendment to Chapter VII of the By-Laws, namely a new section, Section 9, to the effect that all reports of standing and special committees to the annual meeting of the Council be sent to the Secretary in duplicate in the month of April so that they may be published in the official organ of the Society at least two weeks previous to the annual meeting.
9. Election of officers and orator by ballot.
10. Appointment of standing and special committees for 1931-1932.
11. Incidental Business.

WALTER L. BURRAGE,
Secretary.

Brookline, June 2, 1931.

Councilors are reminded to sign one of the attendance books previous to the meeting.

A SUBJECT OF INTEREST

THE Annual Meeting will begin next Monday morning. The program has been published and sent to the Fellows. Probably the great majority of them have scrutinized it and become convinced that this is the great outstanding meeting in the history of the Society and will continue to occupy this position for the ensuing fifty years.

As suggested in last week's issue, sentiment favorable to the recognition of the Women's Auxiliary may be strengthened by some expression either formally or at least in discussion among the fellows during the sessions.

The conservatism which was shown when women physicians were knocking at the doors of the Society asking for inclusion in its roster may not be so general today for it was a bone

of contention from 1867 to 1882 with the exhibition of pronounced feeling which led to repeated postponements of the effort and even after approval this action was rescinded, and required reopening and final acceptance of the policy of admitting women.

The present question is whether the Society may wish to have the assistance and support of a body of women who by close association with doctors may assist in carrying on some of the non-medical functions as may be desired in social affairs.

Women may have influence in legislative and educational programs if organized. Sentiment favorable to the organization of Women's Auxiliary Societies seems to be growing throughout the country and it would please the national organization if a branch could be formed in Massachusetts.

THE MASSACHUSETTS MEDICAL SOCIETY, 1781-1931*

By a Member

"Ye served your brothers; ye have served your Lord!"
When we had reached a hundred years of age,
Our early records etched on History's page,
By deeds of fearlessness with pen or sword,
Done boldly by Fellows in those erstwhile days
Of Darkness, when our Country needed aid,
So Holmes, our Poet, ended his verses made
To remind us, then, of our Fathers' ways.

Now, a hundred and fifty years have passed,
Since our Society first came to light.
Customs have changed with Time, for Time flies fast,
But still, new battles loom for us to fight.
Pray God, we have the courage to the last,
To meet the Future with our Fathers' sight.

*This seems to express the sentiments of our Society so well that we take pleasure in publishing it, although we have to depart from our usual custom of not receiving anonymous communications.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Root, H. F. A.B., M.D. Harvard University Medical School 1919. Assistant, Courses for Graduates, Harvard Medical School. Address: 81 Bay State Road, Boston. Associated with him is:

Stuart, Genevieve O. Assistant Bacteriologist, Wassermann Laboratory, Massachusetts Department of Health. Address: 240 Longwood Avenue, Boston. Their subject is: "Hinton, Kahn and Wassermann Reactions in Diabetes." Page 1179.

Jordan, William Riely. B.S., M.D. University of Virginia 1928. His subject is: "Unexplained Fever without Leucocytosis: Four Cases Proved to be Undulant Fever." Page 1181. Address: 81 Bay State Road, Boston.

Golden, Lewis A. A.B., M.D. University of Michigan 1929. Resident in Medicine, Boston Dispensary. His subject is: "Control of Hiccough with Carbon Dioxide by a Simple Rebreathing Method." Page 1183. Address: 37 Bennet Street, Boston.

Scamman, Clarence L. A.B., M.D. Bowdoin 1909-12; C. P. H. Harvard-Technology School of Public Health 1922. Director, Division of Public Health, The Commonwealth Fund, New York City. Address: The Commonwealth Fund, 41 E. 57th Street, New York City. Associated with him is:

Knowlton, Wilson W. B.S., M.D. Harvard University Medical School 1926. District Health Officer, Massachusetts Department of Public Health. Address: State House, Boston. Their subject is: "Health Service for the Small Community—Its Development in Massachusetts." Page 1184.

Dameshek, William. M.D. Harvard University Medical School 1923. Instructor in Medicine, Tufts College Medical School. Assistant in Medicine, Beth Israel Hospital. His subject is: "Some Arguments Against State Medicine." Page 1187. Address: 484 Commonwealth Avenue, Boston.

Reinhart, Alfred S. A.B., Harvard 1928. His subject is: "Evolution of the Clinical Concept of Rheumatic Fever." Page 1194. Address: 240 Longwood Avenue, Boston.

Leland, George Adams. A.B., M.D. Harvard University Medical School 1911. F.A.C.S. Associate Surgeon, Massachusetts General Hospital. Consulting Surgeon, Huntington Memorial Hospital and Palmer Memorial Hospital. Instructor, Harvard Medical School. His subject is: "The Treatment of Compound Fractures." Page 1200. Address: 144 Commonwealth Avenue, Boston.

Bowler, John P. A.B., M.Sc., M.D. Harvard University Medical School 1919. F.A.C.S. Dean, Dartmouth Medical School. Member of Surgical Staff, Mary Hitchcock Memorial Hospital. Address: Hitchcock Clinic, Hanover, New Hampshire. Associated with him is:

Gile, John F. A.B., M.D. Harvard University Medical School 1920. F.A.C.S. Instructor, Dartmouth Medical School. Member Surgical Staff, Mary Hitchcock Memorial Hospital, Hanover, N. H. Address: Hitchcock Clinic, Hanover, New Hampshire. Their subject is: "Ureteral Transplantation for Intractable Vesicovaginal Fistula." Page 1205.

MISCELLANY

A BROADCASTING MESSAGE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

The Health of the Pre-School Child*

BY DR. R. M. SMITH

From birth to school age is the most important period of the child's life for it is the period of most rapid growth and development, of the greatest plasticity of body and mind, and of the largest amount of sickness and the greatest number of deaths. The child increases his weight six times during the first six years, and from that time to adult life only four times. During these same six years the child increases in height two and one-half times, and for the rest of the growing period only about one-half times. At six years of age the brain has reached ninety per cent. of its adult size. The child has learned to walk, to talk, to understand, and to adapt himself quite well to his environment. The influences which are brought to bear upon the child during this period and the direction which is given to the formation of his habits result in a fixity of structure and function which is very hard to change in later life.

The attention of the parents and those interested in the welfare of children should be exerted upon the child during these important years in order to save life, to secure normal development, and to prevent disease. This required the institution of positive action and the raising of negative safeguards. We shall have to consider first of all nutrition; secondly, the care of the body; thirdly, the routine of daily life; fourthly, the prevention of disease; and finally, education and training. Every child must receive individual attention as each one presents a problem of his own.

We have spoken of the rapid growth of the body during the first six years of life. In order that this growth may take place in a normal manner the child must be given the proper food. It is impossible at this time to discuss the exact diet which any particular child should receive for that will vary somewhat according to his specific demands. We may, however, indicate the general principles upon which that diet is to be selected and point out certain essential requirements which it must fulfill. An adequate diet must supply the minimum demands of the body to maintain life, and in addition, the elements which provide substances for growth, the materials which serve as fuel to keep the body warm and allow activity for muscles and mental processes, and finally, a slight excess of all these because of loss which occurs from incomplete utilization. We divide these food elements into water, protein, fat, carbohydrate, salts, and vitamins. A deficiency in any one of these may result in serious disturbances in normal growth and development. The quantities of each element must be sufficient and also the relationship of each to the other must be such as to insure the best utilization within the body. Of equal importance with the selection of a proper diet is the training of the child in good food habits. Regularity in times of eating, a good appetite without the intrusion of violent likes and dislikes, proper mastication without haste or dawdling, pleasure in food without over-indulgence, and a happy frame of mind without disciplinary arguments may be mentioned as the kind of food habits which are desirable for the child to acquire.

The correct care of the body is less difficult than almost anything else concerning the child because with reasonable judgment and a little experience a mother may learn how to give a bath and how to do the other necessary things of the daily care. She may get advice from her physician or from government publications concerning the proper clothing for her child to wear.

It is imperative for her to train the child to a regular movement of the bowels every day and nothing should be allowed to interfere with this habit.

The daily routine of the child is of extreme importance. The mother must have some plan in order to be sure that the essential things are done every day. Provision must be made for eating, for bathing, for dressing, and for other similar activities, for rest and play.

Fatigue is one of the things which is most detrimental to the health of the child. We must be sure, therefore, that he has adequate rest. He should receive up to the sixth year of age not less than twelve hours of sleep at night. He should be taught to sleep alone in a room by himself with the door closed. He should not be dependent upon one person to sit with him at night before he goes to sleep or to rock him to sleep. He should not be dependent upon some toy or other plaything which must always be at hand before he can go to sleep. These bad sleeping habits can be best prevented by never allowing the child to begin them. In addition to the twelve hours of sleep at night the child should have a rest period every day. During the latter two or three years before the school age he may not sleep every day at this time but he will sleep a good many days if his rest period is continued regularly and he is left quietly alone at this time. It has been shown conclusively that children who go without a nap in the middle of the day do not, because of that, go to sleep earlier at night. If they do not sleep in the middle of the day they lose that much sleep in the twenty-four hours. Children should be awakened at the end of a one and one-half to two hour nap in order that the routine of the day may be properly continued and that they may not prevent themselves from going to sleep for fear they may be allowed to sleep too long and miss things they want to do in the afternoon.

Some provision should be made every day for play or relaxation. It is important to be remembered that children have only a small tolerance for long-continued exercise of any kind and that play and

*Broadcast April 15, 1931.

recreation for them must be planned on the basis of their possibilities of enjoyment and of physical ability. Except in extremely cold weather it is desirable for all children after they are one or one and one-half years old to be out of doors for a part of each day. If possible it should be planned during the sunniest and warmest part of the day in winter.

Much has been learned about the prevention of disease but there are only a few instances in which specific measures are applicable. Of these we must take advantage.

Smallpox formerly caused a high mortality of children in the pre-school period but is now relatively uncommon because of widespread vaccination. No child should be allowed to suffer from this disease which can be entirely prevented by vaccination.

Diphtheria also might become as rare a condition in children if every infant were immunized against this disease by the use of toxin antitoxin. This is another specific protective measure which should not be omitted.

Tuberculosis may be prevented in children but only by avoiding exposure to infection. Children should be kept away from all persons who have a contagious form of the disease and they should never drink any raw milk or products made from raw milk. If these two ruies are rigidly observed the chances of tuberculous infection will be negligible.

Measles and whooping cough are serious diseases in children under three years of age and every effort should be made to prevent exposure during these years. If exposure to measles takes place it is possible to insure a mild form of the disease by the use of serum from someone who has previously had the disease and has recovered. Your physician will have to decide in each instance whether or not serum should be given.

Colds are considered too lightly. They may be a forerunner of serious disease in the lungs, the glands of the neck, or the ears, and should always be treated with respect. Children should so far as possible avoid crowds especially when epidemics of colds are about and every child with a cold should be isolated from other children. We do not know how to prevent colds but these simple measures may serve to reduce the spread of infection to a considerable degree.

Education and training in proper habits are as important as the care of the child's body. This is the period in which permanent characteristics are developed and it is important that the habits formed should be those which are conducive to health. Our object throughout this period should be to secure a sound mind in a healthy body.

TUBERCULOSIS ABSTRACTS

By the National Tuberculosis Association

When as a young man Sir Robert Philip, now professor of tuberculosis in the University of Edinburgh, announced his intention of specializing in tuberculosis, one of his wisest and kindest teachers said, "Don't think of such a thing. Phthisis is worn to a very thin thread. The subject is exhausted." Fifty years of untiring labor and leadership have dimmed neither the zest nor the perceptions of this pioneer. Recently, Sir Robert delivered the Malcolm Morris Memorial Lecture on "The Outlook on Tuberculosis." After reviewing the past, he sounded the call for fresh orientation. Advanced disease of the lung, he said, has absorbed most of our interest in the past; it is time to shift attention more and more towards the earliest indications of tuberculosis infection. In this number of *Tuberculosis Abstracts*, there is space only for comment on this phase of tuberculosis control. Sir Robert Philip's interesting and comprehensive monograph was published in the *British Medical Journal* of January 10, 1931.

DETERMINING EARLIEST INDICATIONS OF INFECTION

Pulmonary tuberculosis is in reality a late, visceral manifestation of an infection contracted much earlier. The author has had opportunity in numerous instances to trace the development of tuberculosis in the same subject in ever-changing form from the seed stage up to full fruition; in some instances, for 30 years or more. The ebb and flow—the arrest and advance of the disease—are but expressions of the continuing contest between the invading organism and the resistance of the tissues of its host. While the invading organism is presumably little changed save in respect of numbers, the resistance offered varies endlessly as a result of intercurrent illness, accident, strain, and a host of environmental influences. Infection is the crossing of the frontier—the beginning of what is often a lifetime contest.

SCIENTIFIC ANTICIPATION

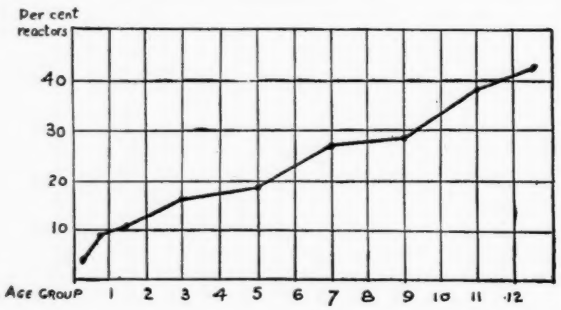
The hope of preventing the endless possibilities of subsequent mischief following infection led the author some years ago to recommend the systematic examination of contacts. The next step was to advise the search for the earliest traces of tuberculous infection in every child. As infection takes place most commonly during childhood, the tuberculin test, he believed, should become routine practice at stated intervals from early infancy onward. So long as the reaction remains negative, nothing further is necessary. Whenever a positive reaction is obtained for the first time, the fact and the date should be recorded on the permanent medical history of the child.

If, after positive determination, the health of the child continues thoroughly good, we have the knowledge that the child's resistance is sufficient, and there is no call for treatment. On the other hand, the positive determination may illuminate many after-events. Vague conditions of "delicacy" in the child may find their explanation— for example, malnutrition, obscure feverish attacks, ill-defined lack of energy, so-called "disturbed action of the heart," which may interfere with the claims of education and sport. Such conditions are very frequently the

expression of tuberculous infection. Further, the occurrence of incidental illnesses, such as measles and whooping cough, will call for watchfulness, and care will be taken to secure complete convalescence after such attacks. The doctor will insist on the maintenance of a high level of resistance, more particularly in relation to school life, the period of adolescence, and the time of entrance into more responsible life.

DETERMINE THE FACT AND DATE

Preventive medicine may wisely take a lesson from the sphere of agriculture. The practical farmer who seeks to raise a tubercle-free herd has learned the value of the tuberculin test. A method for the early detection of tubercle which is worth



Mantoux Reactions of 1,286 Children—Bellevue Hospital, New York, from 1921 to 1928. (From "Tuberculin Skin Reactions," C. H. Smith, *Am. Jour. Dis. of Children*, Dec., 1929.)

the farmer's while on economic grounds has still greater significance and wider efficacy—both medically and economically—in dealing with the human race.

Sir Robert Philip would not make a formal distinction between reactors and non-reactors but recommends the routine practice of determining the *fact* and *date* of the initial infection in every child. That is a service which might well commend itself to the American physician, who is growing increasingly interested in preventive medicine and strives to render to his families a positive health service.—*The Outlook on Tuberculosis: Changing Orientation, Sir Robert Philip, The British Med. Journal., Jan. 10, 1931.*

PAPER STIMULATED WIDE INTEREST

Sir Robert's paper immediately stimulated much discussion among the medical profession of England and Scotland. The comments were, on the whole, favorable and reflected the deep respect which is felt by doctors and laymen for the genius and leadership of the author. To him, said one writer, is due almost entirely the present favorable position of the campaign against tuberculosis. The comments, together with Sir Robert's final rebuttal were printed in subsequent issues of the *British Medical Journal*. Some of these are briefly abstracted below.

Robert Carswell raised this question: Supposing the fact and date of tuberculization has been duly noted in relation to each child; what practical use is now to be made of the information? Excluding specific methods of immunization or "detuberculization," Sir Robert Philip's answer, he says, is too nebulous. He believes that a more definite attempt should be made to immunize the child (presumably by some form of vaccination). In spite of many failures, there has been sufficient success with preventive immunization, supported by ordinary hygienic measures, to make it more than a hope, and he submits that a demonstration to prove the value of detuberculization is the next most important step in the campaign against tuberculosis.

TEST A CLUE TO SOURCE OF INFECTION

John Gibbens takes issue with that part of the essay which implies that malnutrition, obscure feverish attacks, lack of energy, and the like may be the expression of tuberculous infection in a child who reacts positively to the tuberculin test. Tuberculosis carries with it too great a stigma to justify anyone in diagnosing it easily in such delicate children. The value of the positive Mantoux test, he says, lies rather in stimulating the doctor to get the child back to full health as rapidly as possible. Gibbens admits that knowledge of the fact of tuberculization is extremely important but for another reason; namely, that the earlier the age at which a positive reaction is found, the more likely is one to find the adult that is disseminating the infection.

W. Camac Wilkinson emphasized that the environment of the child is the source of infection. Too much attention cannot be paid to the environment of the child if we wish to tackle infection at its source. "Neither fresh air nor sunshine can prevent tuberculosis in children living in the houses of consumptive parents."

Sir Robert Philip in his answer disclaims responsibility for misunderstandings voiced and reiterates that to the question, "Have we reached finality?" an emphatic negative must be given. He repeats his plea for the systematic search for, and determination of the fact and date of initial infection in every child, primarily so that the information may be kept in view throughout the further life-history of the individual in order that, if indications of progressive tuberculization supervene, they may timeously be met by measures of detuberculization.

CORRESPONDENCE

AN IMPROVED OUTFIT FOR THE SCHICK TEST

The Commonwealth of Massachusetts
Department of Public Health
Boston 30, Mass.

May 28, 1931.

Editor, *New England Journal of Medicine:*

May I have the privilege of announcing in your *Journal* that beginning on or about June 1 our Antitoxin and Vaccine Laboratory will distribute an

improved outfit for the Schick test. Studies carried on at that Laboratory for the past few years have led to the discovery that diphtheria toxin may be diluted to the strength required for the Schick test by using a dilute solution of peptone, and that diphtheria toxin so diluted will retain its original potency for several months.

Therefore, instead of the old outfit containing a capillary tube of toxin and a 10 cc. vial of sterile salt solution for making the toxin dilution (and a 10 cc. vial of heated diluted toxin), the new package will contain a 5 cc. vial of ready-diluted toxin with a label printed in red, "Diluted Diphtheria Toxin—Use 0.1 cc. of this Dilution," and a 5 cc. vial with label printed in black, "Heated Toxin Dilution—Use 0.1 cc. of this Dilution" (for control).

This improved package, therefore, does away with the necessity of making a fresh dilution of toxin with each outfit. The package from the time of its receipt until its use should be kept in a refrigerator at a temperature between 0° and 8°C. (32° to 46°F.) and care should be taken to prevent freezing of the solution. All opened vials containing toxin after the day's use should be discarded.

May I also recommend that physicians, before using this new Schick outfit, read the revised leaflet of directions.

I am sure that physicians will appreciate the simplification of the outfit and that they will be encouraged to apply the Schick test to all persons six months after the last injection of diphtheria toxin-antitoxin mixture.

Sincerely yours,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

ERRORS IN THE REPORT OF AN ADDRESS BY DR. GEORGE R. MINOT

Boston, May 26, 1931.

Editor, *New England Journal of Medicine:*

A day or two ago I wrote you asking you to not publish the reporter's notes of a talk I gave in Abington before the Plymouth District Medical Society. I now can illustrate to you the misfortune of having reporters' notes printed. In the May 21st issue of the *New England Journal of Medicine*, on page 1104, there is a report of what I said before the Harvard Alumni Association. I did not see the proof of that report and the reporter or the proof-reader has allowed the word "optional" to be used in place of the word "optimal". You will note where "optional" appears on page 1105 in the sentence beginning "It is usually a simple matter," etc., 5th line from the bottom of that paragraph, making the sentence read "The principle of supplying optional quantities", etc., is quite ridiculous. Again in the next to the last paragraph page 1105, 6th line from the bottom of that paragraph, the word "Optional" is again used instead of the correct word "optimal". Many patients I do not doubt depart from an optional diet but it is a very different matter if they depart from an optimal diet. Perhaps you would care to have this corrected in some subsequent issue.

Very sincerely yours,
GEORGE R. MINOT.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.
May 29, 1931.

Managing Editor, *New England Journal of Medicine:*

In addition to the articles enumerated in our letter of April 25 the following have been accepted:

Hixson Laboratories, Inc.
- Rabies Vaccine (Hixson)

Lederle Laboratories, Inc.
- Concentrated Pollen Antigen (Lederle) Ragweed Combined
- Diphtheria Toxin for Schick Test in Peptone Solution

Eli Lilly & Co.
- Diphtheria Toxoid—Lilly
- Syrup No. 112 Ephedrine Hydrochloride

Chas. Pfizer & Co.
- Calcium Gluconate—Pfizer

Spicer & Co.
- Quiniobine
- Quiniobine Ampules, 2 cc.

E. R. Squibb & Sons
- Grasses Combined Pollen Allergen Solution—Squibb
- Cottonwood Pollen Allergen Solution—Squibb

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1930, p. 477):

Hixson Laboratories, Inc.
- Diphtheria Antitoxin
- Tetanus Antitoxin

Yours truly,
W. A. PUCKNER, *Secretary,*
Council on Pharmacy and Chemistry.

RECENT DEATHS

DOW—DR. JAMES ARTHUR DOW, a retired Fellow of the Massachusetts Medical Society, died at his home in Cambridge, May 27, 1931, at the age of 86. A native of Bath, New Hampshire, he was graduated from the University of Vermont College of Medicine in 1867. In 1869 he married Miss Alice Lincoln of Windsor, Vt., and soon settled in practice in Cambridge, joining the Massachusetts Medical Society in 1871. In his early practice he was a member of the Cambridge school committee and was connected with the Cambridge Hospital for several years. At one time Dr. Dow was president of the Columbian Coöperative Bank and, at the time of his death, was a trustee of the Cambridgeport Savings

Bank. From 1909 to 1911 he was a Councilor of the Massachusetts Medical Society from the Middlesex South District.

FRASER—Dr. John Chisholm Fraser, of East Weymouth died there May 27, 1931, aged 77 years.

He was born at James River, Antigonish, Nova Scotia, August 2, 1853, and was educated at the Antigonish schools and at St. Francis Xavier College where he took an A.B. and an A.M. He was graduated from Bellevue Hospital Medical College, New York, in 1876 and settled in East Weymouth in the same year.

Dr. Fraser was a Councilor of the Massachusetts Medical Society in 1890 and in 1898 and was president of the Norfolk South District Medical Society in 1901 and 1902. He served six years on the school committee and was medical examiner of the 4th Norfolk district from 1893 until his death. In the latter connection he was a member of the Massachusetts Medico-Legal Society, acting as its president for two years.

Joining the state medical society in 1880 Dr. Fraser was in time a Fellow of the American Medical Association and was a member of the Knights of Columbus and of the Boston Caledonian Club.

He was married to Miss Mary A. Boyle of East Weymouth in 1880. She died in 1929. There are five surviving children two of them being Dr. Archibald McKay Fraser and Dr. Somers Fraser, both of Boston and both Fellows of the Massachusetts Medical Society.

GAY—Dr. George Washington Gay, formerly surgeon to the Boston City Hospital and president of the Massachusetts Medical Society, died at his home in Chestnut Hill, after a long illness, May 30, 1931, at the great age of 89 years.

NEWS ITEMS

GRADUATE FORTNIGHT OF THE NEW YORK ACADEMY OF MEDICINE — The disorders of the circulatory system which have in the last decade placed "heart disease" in the forefront of the principal causes of death will constitute the theme of the Fourth Annual Graduate Fortnight of the New York Academy of Medicine.

This graduate course of instruction will consist in a series of lectures and clinical demonstrations, concentrated in a period of two weeks from the 19th to the 30th of October, 1931.

Lectures will be delivered evenings in the auditorium of the New York Academy of Medicine, 2 East 103rd Street, New York City. Clinical demonstrations will be held afternoons in twelve of the leading hospitals of the city. The demonstrations will be in charge of teaching clinicians and will be organized so that those participating will have the full benefit of individual contact with both demonstrator and patient.

An outstanding feature of the 1931 Graduate Fortnight will be the anatomical, bacteriological, and pathological exhibition of specimens and research material bearing upon the subjects dealt with in the evening meetings and clinical demonstrations.

This exhibit will be housed in the Academy and will be open for leisurely study. A number of the exhibited items will be demonstrated on schedule and subjected to group discussion.

The profession of the country is invited to attend and to participate in the Graduate Fortnight. There is no charge for attendance at any of the clinics or meetings, but registration for the clinical demonstrations is required.

A complete program and registration blank for the clinics and demonstrations may be secured by addressing the New York Academy of Medicine, 2 East 103rd Street, New York City.

A TRIBUTE TO DR. EDWARD O. OTIS—On Monday, June 8, 1931, a group of the associates and intimate friends of Dr. Edward O. Otis will meet at the rooms of the Boston Tuberculosis Association for the purpose of extending to him expressions of appreciation of his inspiring work as a pioneer in the tuberculosis movement in connection with the Boston Tuberculosis Association and in national fields.

Dr. Frederick T. Lord, President of the Massachusetts Tuberculosis League, will preside.

Addresses will be delivered by Dr. George H. Bigelow, Dr. John B. Hawes, 2nd, Mrs. Mabel Greeley Smith of the Cambridge Tuberculosis Association, and Mr. John Ritchie of Malden.

FACULTY APPOINTMENTS AT THE HARVARD MEDICAL SCHOOL — The following appointments have been approved by the Corporation and the Overseers of Harvard University effective September 1, 1931:

John Lewis Bremer, M.D., Hersey Professor of Anatomy (at present Associate Professor of Histology, Harvard Medical School).

George Bernays Wislocki, M.D., Parkman Professor of Anatomy (at present Associate Professor of Anatomy, Johns Hopkins Medical School).

Frederic Thomas Lewis, M.D., James Stillman Professor of Comparative Anatomy (at present Associate Professor of Embryology, Harvard Medical School).

REPORTS AND NOTICES OF MEETINGS

A HEALTH SURVEY OF MALDEN

An exceedingly interesting contact between the State Department of Public Health and the Health Department of the city of Malden, Mass., was effected on Monday evening, May 25, when Health Commissioner, Dr. George H. Bigelow, presented to an interested audience in City Hall, Malden, the findings of a recent survey of the health administration of the city. This survey was undertaken by the State on request of the local board.

The company assembled included the Mayor of

Malden, the members of the Board of Health, representatives of the various nursing services, physicians, interested councilmen and aldermen, and a number of private citizens. Dr. Carroll C. Burpee, chairman of the local board, presided, and Dr. Bigelow was assisted by Dr. Charles Mack, district health officer and Dr. Gaylord Anderson, who conducted the survey.

A basic principle was the preamble to the report, namely, that the local Board should be advisory, for it is unfair to expect citizens to give the time necessary for the detailed work, when receiving only the nominal compensation that these men are paid in Malden.

Dr. Bigelow complimented the city of Malden for pioneer health work, noting in particular the early establishment of a tuberculosis society and a children's health camp, and further said, that many boards of health are not anxious to have their methods subjected to study. It is to the credit of the Malden Board, that it asked for the survey. Dr. Bigelow here expressed surprise that Malden with its early record should now remain practically passive, with an inadequate budget for health work, and half of this expended on the hospital for contagious diseases. There is good child welfare service so far as carried out, the follow-up in tuberculosis is better than that in most cities in the Metropolitan area and the milk on sale must be pasteurized or certified, a requirement of only four other cities in the state.

With reference to communicable diseases the report records that no special nursing service exists and such a service is recommended. It is an important adjunct to the handling of the diseases, and the nurse is a most important and necessary educational agent. Reaching the members of the family directly and in the home, she is able to demonstrate to mothers how to handle the various secretions and wastes, how to sterilize dishes and other items effectively, and can teach the importance of care of other members of the family; all of these practices constituted the greatest importance in prevention.

It is true that good work has been done in Malden in diphtheria, about 70 per cent. of the entrants into schools being immunized. This practice should however be extended to younger children, this being important because of the contacts between the preschool children and the others.

Dr. Bigelow recommended that quarantine release in cases of typhoid fever be effected only on negative stools and urine, a procedure that will identify carriers, and afford protection against such persons.

The speaker here noted that the point made in the survey, that it is well to have children return to school after an illness only through a certificate from the Board of Health, has been made a requirement since the survey was made.

There was much discussion evoked by the questions raised by Dr. Bigelow's report with reference to the contagious hospital. There are 25 beds for contagious maladies and ten for tuberculosis. The hospital was characterized as too costly, requiring as it does one-half of the appropriation for the Health Department. The suggestion was made that it would be economy to have the patients cared for in larger hospitals, where the overhead is proportionately much less. One plan suggested a hospital in Boston, while another would be for the Malden Hospital to arrange for accommodations. The plan last-named has advantages in nearness to the homes and the centralized administration.

The Board of Health ambulance came next under consideration, it being apparently more economical to purchase the service than to maintain the ambulance, when the comparatively small number of runs, about 150 a year, is considered.

In the dental program, the State authorities find that the cases are now selected by the school nurses and the dentists get only the children thus picked out. It would seem as if the time had come when the Board of Health could profitably employ a dental hygienist. This service, be it understood, should not be maintained merely for those who cannot pay, but should be a part of a broad program of prevention.

Considering the Board itself, Dr. Bigelow's report asserts that the three members should not be called upon for services other than advisory, and that a city of 59,000 population is large enough for a full-time health officer. The salary should be from $2,500 to $3,000, and probably it would be difficult to secure a medical man for that figure. A non-medical officer, who might be secured, could care for the administrative work, and the milk inspection and laboratory testings. This with certain rearrangements of the existing force together with a dental hygienist and a communicable disease nurse, would at comparatively little additional cost put Malden in a position in matters of public health comparable with that which the city holds in other civic matters.

The further suggestion was made in the course of the report that a public health nursing advisory committee be formed, the groups represented to be the associated charities and kindred organizations, the health activities of the school department and the Board, itself. This would be an advisory group, which could with advantage make a study of the whole problem, and in its suggestions avoid the duplication of effort that is sure to be present where there is not close coöperation between the different agencies.

The formal discussion centred about the hospital and the ambulance. Mayor Hastings presented some of the financial problems, making note that the Board of Health had been very coöperative in helping lessen the demands on the treasury. The city is obliged by laws to increase salaries, and this, in times of depression, makes it necessary to curtail elsewhere. It was developed that surrounding cities make use of the communicable disease hospital,

and probably without contributing their full ratio to the cost of maintenance. It was allowed by the State authorities that this is really Malden's affair, and if it wishes to be the "angel" to other communities, it can do so, but the cost is high when it demands half the total health appropriation, namely, about fifty cents per capita of population.

With reference to the ambulance, it was shown that much of the time of two inspectors was demanded by it, and in its absence they might be busy with other inspection work. In this connection Dr. Bigelow stated that much of the store inspection, that of hardware stores for example, is unnecessary from the health point of view.

After the meeting was formally adjourned, a goodly number of the company remained for an hour talking over the various suggestions, an evidence of the interest which such surveys are sure to excite, to the increase in popular appreciation of the fundamentals of health and health administration.

THURBER MEDICAL ASSOCIATION

A well-attended meeting of Thurber Medical Association was held at Milford Hospital, Milford, Mass., Wednesday evening, May 27, 1931, in the seventy-eighth annual series of that organization.

Dr. John V. Gallagher, president, presided and introduced the speaker of the evening, Dr. Edwin H. Place, Physician-in-chief of the South Department of Boston City Hospital and Clinical Professor of Pediatrics at Tufts College Medical School.

Dr. Place spoke interestingly on his experience with Scarlet Fever and entered into the lively discussion by the members which followed his address.

A fine luncheon was served by nurses under the direction of the hospital dietitian.

BYRON F. BROWN, *Secretary.*

WACHUSETT MEDICAL IMPROVEMENT SOCIETY

The last regular meeting of the Wachusett Medical Improvement Society was held at the Central New England Sanatorium, Rutland, Mass., on Wednesday, May 6, 1931. Dr. Frank B. Carr read a paper on the "Electrocardiograph."

A large number of members and guests attended. An opportunity was given by Dr. Bayard T. Crane, Medical Director, to inspect the institution and make a review of the excellent work being done there.

WILLIAM T. KNOWLTON,
Secretary and Treasurer.

THE AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians will hold its Sixteenth Annual Clinical Session at San Francisco with headquarters at the Palace Hotel, April 4-8, 1932. Following the Clinical Session, a large percentage of the attendants will proceed to Los Angeles where a program principally of entertainment will be furnished April 9, 10 and 11.

Announcement of the dates is made particularly with a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1932 meetings.

Dr. S. Marx White, of Minneapolis, is President of the American College of Physicians, and will arrange the Program of General Sessions. Dr. William J. Kerr, Professor of Medicine at the University of California Medical School, San Francisco, is General Chairman of local arrangements, and will be in charge of the Program of Clinics. Dr. Francis M. Pottenger, of Monrovia, is President-Elect of the College, and will be in charge of the arrangements at Los Angeles. Mr. E. R. Loveland, Executive Secretary, 133-135 S. 36th Street, Philadelphia, Pa., is in charge of general and business arrangements, and may be addressed concerning any feature of the forthcoming Session.

SOUTH END MEDICAL CLUB

The next regular meeting of The South End Medical Club will be held on Tuesday, June 16, 1931, at 12 noon, at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston.

The speaker will be Dr. I. Chandler Walker, Associate in Medicine, Peter Bent Brigham Hospital, who will speak on "Asthma and Hay Fever."

Luncheon will be served at 1 o'clock. All physicians are cordially invited to attend.

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

June 7, 8, and 9—The American Proctologic Society. See page 951, issue of April 30.

June 8—American Medical Golfing Association Tournament; Philadelphia. See page 1066, issue of May 14.

June 8-12—Woman's Auxiliary to the American Medical Association. See page 743, issue of April 2.

June 8-14—International Hospital Congress. See page 521, issue of March 5.

June 9—Medical Veterans Meeting. See page 895, issue of April 23.

June 9—The Scientific Session of the American Heart Association. See page 1177, issue of May 28.

June 16—South End Medical Club. See notice above.

June 16-19—Catholic Hospital Association. See page 690, issue of March 26.

July 6-11—Medical Clinic, Paris. See page 520, issue of March 5.

July 26-31—Third Congress of the Pan American Medical Association. See page 632, issue of March 19.

July 27—The Post Graduate Course of Ear, Nose and Throat Surgery at the University of Bordeaux, France. See page 951, issue of April 30.

July 27-31—Third International Congress of Radiology, Paris. See page 789, issue of April 9.

Aug. 31 - Sept. 4—Neurologists will meet in Berne, Switzerland. See page 896, issue of April 23.

September 14-17—The American Public Health Association. See page 632, issue of March 19.

October 12-16—An Announcement of the Clinical Congress of the American College of Surgeons. See page 1175, issue of May 28.

October 19-22—The Interstate Post Graduate Medical Association of North America. See page 1125, issue of May 21.

October 19-30—Graduate Fortnight of the New York Academy of Medicine. See page 1230.

April 4-8, 1932—The American College of Physicians. See notice elsewhere on this page.

DISTRICT MEDICAL SOCIETIES

Bristol North District Medical Society

September 17—Details to be announced.

Middlesex South District Medical Society

June 24—Golf Association Spring Tournament. See page 1177, issue of May 28.

Plymouth District Medical Society

July 17—Midsummer meeting. See page 1011, issue of May 7.

BOOK REVIEWS

Studies from the Rockefeller Institute for Medical Research. Reprints. Volume 76. 1931. Pp. 644.

The outstanding article of interest in this volume of reprints is the valuable monograph by van Slyke et al., "Observations on the courses of different types of Bright's disease, and on the resultant changes in renal anatomy." In this study sixty-six cases were reported; autopsies were obtained in eleven.

The authors divide the cases into several groups, as follows:

Acute hemorrhagic nephritis, the latent form of hemorrhagic nephritis, the acute chronic form of hemorrhagic nephritis, the terminal stage of hemorrhagic nephritis; then arteriosclerotic nephritis; then degenerative nephritis or nephrosis. In this terminology hemorrhagic nephritis is used as the equivalent of glomerular nephritis. Condensed charts of the various cases are shown, giving the essential clinical features of the various cases. A number of excellent photomicrographs illustrate the paper.

The usual wide range of subjects is also presented, covering the fields of pathology and bacteriology, biophysics, chemistry, pharmacology, general physiology, clinical medicine and animal pathology.

Medical Administration of Teaching Hospitals. By Emmet B. Bay, M.D. The University of Chicago Press. Illinois. 1931. Pp. 136. Price $2.00.

This book is one of a group of studies of the modern hospital. Its aim is to present the procedures which aid the work of the physician in the hospital and which coördinate the various medical activities.

The first chapter discusses briefly the literature of the subject and emphasizes that while economy and efficiency of management have been stressed, the medical aspects of the problem have been largely neglected.

Nineteen teaching hospitals in different parts of the country were used as the basis of the study. Two in Boston were selected, the Massachusetts General Hospital and the Peter Bent Brigham Hospital.

The various chapter headings afford an index of the material covered. Thus, we have discussed the admission of patients and the contact with the referring physician. This chapter brings out some extremely valuable points. Then is taken up the allocation of beds to services and specialties, the coördination of clinics, special laboratory tests and special diets, and medical records.

Next is discussed the organization of the attending staff, the general administrative organization, and the administrative duties of clinicians and residents.

This first study augurs well for the value of subsequent reports in this series.

Crippled Children. Their Treatment and Orthopedic Nursing. By Earl D. McBride, B.S., F.A.C.S., Instructor in Orthopaedic Surgery, University of Oklahoma, etc. St. Louis. The C. V. Mosby Company. 1931. Price $3.50.

This book of 280 pages, very generously illustrated, is intended for nurses and others who are concerned with the care of crippled children. It is well written by an orthopaedic surgeon of large experience who is at present actively engaged in the care of children suffering with disabling diseases and deformities, and who is informed as to modern methods of treatment. Some of these methods he has himself devised. Very wisely he only outlines the general principles upon which the surgeon bases his procedures, but describes carefully the preparation of the patient, his after-care and those details of apparatus, bandages, et cetera, with which his nursing and lay assistants should be familiar. He "sticks to his last" of purpose and does not write above the heads of those for whose help the book is designed. Features worthy of commendation are descriptions of the early symptoms of disease and the emphasis placed upon the importance of early recognition of those crippling conditions. The author is evidently aware of the fact that, as Sir Robert Jones has said, the cripple is usually *made* not *born* and that prevention of deformity is usually possible. The forewords by Dr. Elliott G. Brackett of Boston and Mr. Edgar F. Allen, president of the International Society of Crippled Children, testify as to the usefulness of this volume to nurses, social workers, parents and the general public who are, or ought to be, interested in problems of the crippled child.

Massage et Rééducation. By Durey and Lucienne Meurs. Gauthier-Villars et Cie, Paris, 1930. Price 15 fr.

This is a small book of 95 pages, the first of a series of projected similar volumes published under the general title, Actualities of Physiotherapy, and designed to gather and present in as practical and concise form as possible present knowledge and practice in the domain of physiotherapy. The present volume deals only with massage and reëducation. Its authors are the Chief of the Kinestherapeutic Service at the Hotel Dieu and the chargée of gynecologic kinestherapy at the Broca Hospital.

The subject matter is presented under two general divisions, first, technique, and second, clinical application. Technique is briefly considered in two chapters dealing with massage and reëducation. The greater part of the book is devoted to the clinical application of these modalities in separate chapters dealing with diseases of the respiratory tract, lesions of the skeleton, of the joints, and of the muscles,

diseases of the circulatory apparatus, affections of the skin, diseases of the nervous system, gastro-intestinal tract, and finally general diseases and gynecology.

Necessarily of limited scope but of practical value to the busy physician who cannot afford to take the time to study the subject thoroughly, the authors have been successful in compressing a large amount of useful clinical information into a small amount of space.

BOOKS RECEIVED FOR REVIEW

Clinical Diagnosis by Laboratory Methods by James Campbell Todd and Arthur Hawley Sanford. Seventh Edition. Published by W. B. Saunders Company. 765 Pages. Price $6.00.

Nutrition and Diet in Health and Disease by James S. McLester. Second Edition. Published by W. B. Saunders Co. 891 Pages. Price $8.50.

International Studies on the Relation Between the Private and Official Practice of Medicine with Special Reference to the Prevention of Disease. Conducted for The Milbank Memorial Fund by Sir Arthur Newsholme. Volume One. Published by The Williams & Wilkins Company, and George Allen and Unwin Ltd. 248 Pages.

Eye, Ear, Nose and Throat for Nurses by Jay G. Roberts. Published by F. A. Davis Company. 213 Pages. Price $2.25.

Fundamentals of Dermatology by Alfred Schalek. Second Edition. Published by Lea & Febiger. 247 Pages. Price $3.00.

Chemistry for Nurses by Harry C. Biddle. Published by F. A. Davis Company. 336 Pages. Price $2.75.

Text Book of Physical Therapy by William Benham Snow. Volume 1. Published by the Scientific Authors' Publishing Company. 708 Pages. Price $10.00.

The Renal Lesion in Bright's Disease by Thomas Addis and Jean Oliver. Published by Paul B. Hoeber Inc. 628 Pages. Price $16.00.

Diabetes—Its Treatment by Insulin and Diet—A Handbook for the Patient by Orlando H. Petty. Fifth Edition. Published by F. A. Davis Company. 231 Pages. Price $2.00.

The Sex Factor in Marriage by Helena Wright. Introductions by A. Herbert Gray and Abel Gregg. Published by The Vanguard Press. 122 Pages. Price $2.00.

Resistance to Infectious Diseases by Hans Zinsser. Fourth Edition. Published by The Macmillan Company. 651 Pages. Price $7.00.

Health on the Farm and in the Village by C.-E. A. Winslow. Published by The Macmillan Company. 281 Pages. Price $1.00.

Peptic Ulcer—A symposium of the current literature. Published by the Bisodol Company. 78 Pages.

CALCIUM CHLORIDE FOR THE RELIEF OF PAIN

The intense pain of lead colic, gallstone colic and ureteral colic can be relieved by slow injection into the vein of calcium chloride, a salt of the metal which is necessary for bone formation, Drs. Walter Bauer, William T. Salter and Joseph C. Aub, of the Massachusetts General Hospital, have reported to the American Medical Association. This gives more rapid relief than any other form of treatment tried by these physicians. Their discovery of this new use of a calcium salt and of a way to give relief in these distressing conditions was made in the course of studies on the treatment of lead poisoning.

Lead and calcium, they knew, were both retained in the body in the bones. The chemical behavior of certain lead and calcium salts in the body are very similar. These facts suggested to Dr. Aub that the same physiologic variations which influenced the elimination and excretion of calcium would similarly influence the lead stream.

Medicines that caused decalcification or removal of calcium from the body resulted in an increased excretion of lead. Conversely, treatment that increased calcium storage also increased storage of lead. Consequently in treating lead poisoning, a high calcium diet is used until all symptoms of the poisoning have disappeared, usually within one or two days. The theory underlying this is that following increased calcium retention as a result of the high calcium diet, the lead is removed from the blood and stored in the bones.

In order to hasten this process and give more prompt relief from the severe pain of lead colic, Dr. Aub and associates tried giving a solution of calcium chloride directly into the veins. The results were dramatic. The pain stopped almost immediately, often before the injection was completed. Such prompt relief made them doubt whether the beneficial action of the calcium salt was due to fixation of lead and calcium salt in the bones. Further studies indicated that the calcium salt acts as an antispasmodic. The mechanism of its action, however, remains unexplained at present.—*Science.*